MacWEEK

06.26.95 | *The Newsweekly for Macintosh Managers* | VOLUME 9 NUMBER 26

PC Expo sees Macs shine in Big Apple

Reporter's Notebook

By Mark Hall

New York — Commenting on his company's dismal presence at last year's PC Expo here, Apple USA President Jim Buckley said: "We were like the corner pharmacy competing against Long's Drugs. This year, you'll notice Apple." Buckley was right, even though Apple's marketing remedy was somewhat diluted by the hoopla surrounding Windows 95 at the PC-dominated show.

To steal some limelight the day before PC Expo opened, Apple filled Manhattan's Hudson Theater with press, key users and third parties to bask in the satellite-linked glow of the company's Color Connection product announcements, beamed in live from San Francisco.

The next day, Apple CEO Michael Spindler, Novell Inc. CEO Bob Frankenberg and IBM

See PC Expo, Page 86

IBM to license Mac OS for 1996 CHRP models

By Jon Swartz

Apple may have landed its largest cloning partner yet in IBM Corp., but Big Blue's commitment could be colored by internal squabbling and a less-than-stellar track record licensing the operating systems of others.

IBM said it will sell personal computers next year that for the first time use Macintosh software. The computer giant announced at PC Expo in New York last week that it intends to license the Mac OS for Common Hardware Reference Platform (CHRP) models, due in the second half of 1996.

"We are willing to license the Macintosh OS," IBM Senior Vice President Richard Thoman said. "We've got to give customers the best available choices." He said final CHRP specifications will be published this summer; IBM, Apple and Motorola Inc. in May released a white paper outlining designs for CHRP, which will run PowerPC-native versions of Mac OS, AIX, Novell NetWare, OS/2, Windows NT and Solaris (see MacWEEK, May 15, Page 4).

IBM's bombshell overshadowed a much-hyped press conference that was supposed to mark the coming out of the PowerSeries, a new line of desk-

See IBM, Page 86

New Performas on deck for July

By James Staten

Apple next month will beef up its Performa line by shipping new models with larger hard disks and quadruple-speed CD-ROM drives, sources said.

Headlining the next round of machines, due to ship July 17, will be the Performa 6200, a new Power Macintosh design based on the Quadra 630 but powered by a 75-MHz PowerPC 603 processor. The board provides an LC-style processor direct slot, a video slot, a communications slot for either an Ethernet or modem card, and an expansion bay for a television tuner.

Sources said the new model will

See Performas, Page 88

What's in store for consumer Macs

MODEL	PROCESSOR	CONFIGURATION	APPLE-PRICE
Performa 631	33-MHz 68LC040	8/500	$1,599
Performa 631CD	33-MHz 68LC040	8/500/2x CD-ROM	$1,649
Performa 5200CD	75-MHz 603	8/800/4x CD-ROM	$1,999
Performa 6116CD	60-MHz 601	8/700/2x CD-ROM	$1,899
Performa 6200CD	75-MHz 603	8-16/1000/4x CD-ROM	$2,399

FIRST LOOK

SoftWindows 2.0 beta cracks 486 glass ceiling

Update will run enhanced apps

By John Rizzo

When Insignia Solutions Inc. ships its long-awaited upgrade to SoftWindows at the end of August, the company will have resolved its main problem with the Intel-standard PC emulator software: compatibility with all Windows software.

A look at the first beta of SoftWindows 2.0 showed that the new 486 emulator can indeed run applications that SoftWindows 1.5, a 286 emulator, cannot — specifically, Windows applications that require Intel Corp.'s 386 Enhanced Mode. The new Power Mac-compatible software, which has an expected list price of $499, will also deliver new features, including support for Apple-events scripting, Apple Guide and more-advanced networking.

We installed SoftWindows 2 on a Power Mac 8100/100 with 16 Mbytes of RAM assigned to the emulator and performed a series of tests using ZD Labs' WinStone 95 benchmarking utility. WinStone 95 launches and performs tasks in 13 of the most popular Windows applications — including Microsoft Office, Corel Corp.'s CorelDraw, Borland International Inc.'s Paradox and Novell Inc.'s Quattro Pro for Windows — and then summarizes their performance.

SoftWindows 2 successfully ran all 13 applications. The beta soft-

See SoftWindows, Page 88

PCI Macs outpace apps

Software, system due for tuneups

By David Morgenstern and Cate C. Corcoran

Although the Power Mac 9500 that debuted last week eliminates many previous performance bottlenecks, users of the new PCI Macs can look forward to even greater speeds in the future. Potential optimization from both Apple and third parties promises to let 9500 speeds and feeds surpass current levels.

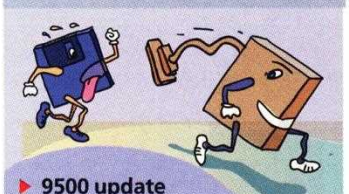
Sources said Apple this summer will release a software update for the 9500. It will reportedly provide a number of rewritten system-level drivers and Power Mac-native software managers, including the Sound Manager and some QuickTime compressor-decompressors, that were not ready to ship June 19. However, users looking for faster serial I/O will still have to wait for the release of Open Transport 1.1, Apple said.

Although many speed gains will result from native system components, developers said optimization for the 604 CPU and other third-party software changes will also boost performance.

Software developers are already lining up behind the faster Macs with versions recompiled

See 9500, Page 86

Playing I/O catch-up



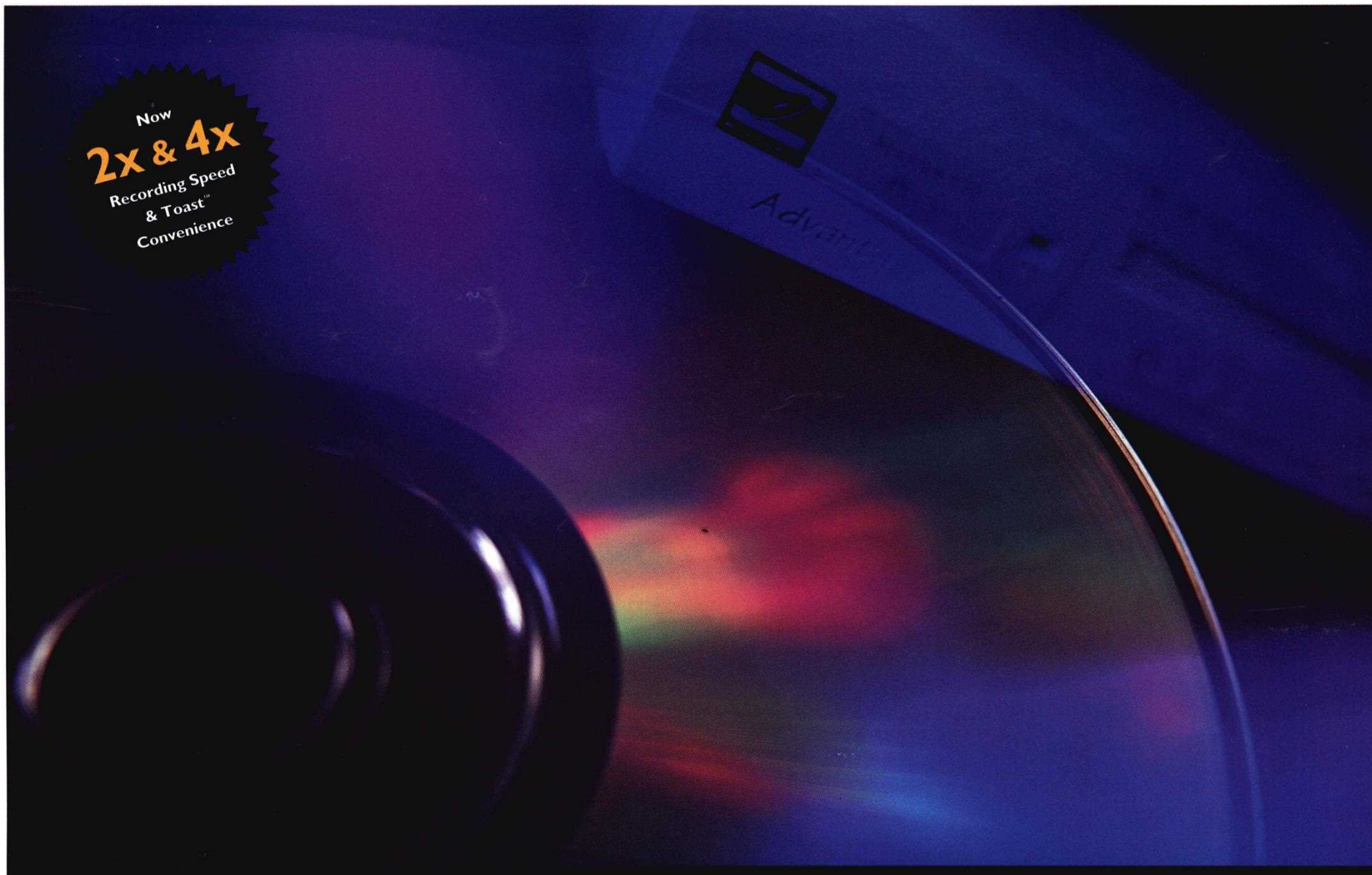
- 9500 update
- 604 optimization
- Open Transport 1.1
- RAID optimization
- Native system additions

Spinning your own Web site

How to get a Mac-based Web site up and running

See Gateways Extra, Page 24

NEWSPAPER SECOND CLASS



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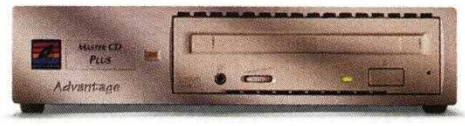

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06.26.95 VOLUME 9 NUMBER 26

4 UP FRONT

OpenDoc lures new vendors • Adobe acquires another one: Frame Technology

6 NEWS

IMS enters PCI picture with graphics accelerator • ClarisWorks 4 hits shelves • ProMax to tap into Iomega's Jaz technology

14 GA

New Architrion merges 2-D, 3-D • DuPont releases flood of digital devices • Big Shot camera back • Short-run digital presses

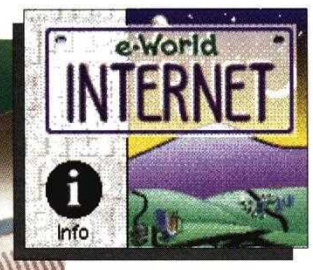
20 GATEWAYS

Remote access from Sonic • Companies post fax packages • New switching hubs due • Gateways Extra: Setting up a Web site

28 BUSINESS

Large sites buy into Mac • R&D code taxing to Apple, others • PaperPort powers Visioneer

Short order: New products abound for short-run digital color printing. See GA, Page 14.



Apple's new eWorld client offers access to the Internet. See Gateways, Page 20.

KPT Vector Effects boosts Mac drawing. See Reviews, Page 35.

Cache as cache can: Clarifying sources of Type 11 errors caused by cache memory defects and Thread Manager problems. See MacInTouch, Page 46.

35 REVIEWS

Apple, FWB and NEC CD-ROM drives face off • MicroNet Master CD Pro 2.5.2 • In Brief: KPT Vector Effects 1.0, Casady & Greene InfoGenie 1.0.2

45 SOLUTIONS

With mail-enabled applications, users can maintain group schedulers and bulletin board services along with their messaging systems.

DEPARTMENTS & OPINION

30 Editorial
30 Second Decade
31 Letters
31 Mac Manager
46 MacInTouch
88 StockWatch
90 Mac The Knife

ALSO INSIDE

48 Mail Order
65 MarketPlace
89 Advertiser Index
89 Product Index

MACWEEK INSIDER CAROLYN SAID

Desktop color has arrived

A billion dollars a year. That's how much Apple's printer business contributes to its bottom line. Even when you're a $9 billion company, that's a significant chunk of change. In fact, the imaging group may well be the company's most profitable operating division.

With its first color laser printer, the Color LaserWriter 12/600 PS, Apple is looking to boost that respectable figure even further. Certainly, the Color LaserWriter is a prime example of how well-designed all Apple products should be.

While some observers last fall worried that Apple would miss the boat by postponing release of its color laser until this month, the decision to wait for the second-generation Canon engine turned out to be a sound one. Conventional wisdom said that Hewlett-Packard Co., the Microsoft Corp. of the printer business, would quickly dominate the color laser market with its Color LaserJet. Instead, HP evidently suffered disappointing sales. Offerings from Xerox Corp. and QMS Inc. have met with similarly weak results (in fact, this week Xerox is tweaking its color lasers to improve image quality), leaving Tektronix Inc.'s Phaser 540 as the only color laser to find any success so far.

Apple's machine is truly compelling. The company, which said it has filed 42 patents on technology developed for the printer, has brought all its expertise with color, graphics and publishing to bear on the new laser. ColorSync 2.0 color matching, Contone compression and Color PhotoGrade halftoning lead a parade of technologies that help the device produce vivid, near-photographic-quality images while maintaining sharp text resolution. And Apple's traditional ease-of-use advantage, sadly lacking in some other Apple products of late, also shines through with such touches as one-side engine access, enclosed toner cartridges and a graphical LED monitor for consumables.

Apple's deal to put Color LaserWriters into 785 Kinko's Inc. shops throughout the United States should help generate many times that number in additional sales. Showcased in the widely used copying centers, the Color LaserWriter will be seen by myriad potential buyers. And, while the new machine should find ready acceptance with graphics users, it is the broader business market that it needs to take by storm.

Apple's expertise with color, graphics and publishing are reflected in the laser.

You don't need any specialized hardware or software knowledge to produce excellent color with this printer. Users don't even need to master QuarkXPress or Adobe PageMaker; regular word processing programs such as Microsoft Word and WordPerfect allow users to place images and apply spot colors. It's truly do-it-yourself color, eminently accessible to any user and eminently respectable in terms of quality and cost.

The original LaserWriter revolutionized black-and-white printing. The advent of color laser copiers with PostScript RIPs transformed the landscape for color runs of a few hundred or few thousand copies. (If you doubt the profitability of this business, look at Electronics for Imaging Inc., the leader in RIPs for color copiers, which made $10 million in profits on revenues of $40.4 million in the first quarter of this year.)

By the same token, Apple's Color LaserWriter should create a similar revolution for push-button color in standard business documents such as market forecasts, brochures and newsletters.

Reportedly, both Tektronix and HP are eyeing the same Canon engine Apple used in the Color LaserWriter for the next generation of their color lasers; at most, Apple has a window of opportunity of a few months to claim this turf. The company needs to be aggressive in selling the new printer as a cross-platform solution to corporate IS, in addition to its core publishing market.

For several years, Apple has been making the pitch that desktop color for business has arrived. With the Color LaserWriter, the company may finally be right. □

Carolyn Said is senior news editor/GA at MacWEEK. She welcomes feedback at carolyn_said@macweek.ziff.com.

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OpenDoc gains support

25 companies buy into technology

By Jon Swartz

New York — OpenDoc's heavy hitters signed up more than two dozen new players to its roster last week in the strongest show of support yet for the 2-year-old consortium.

Executives from the triumvirate backing the compound-application architecture — Apple CEO Michael Spindler, Novell Inc. CEO Robert Frankenberg, and IBM Corp. Senior Vice President John Thompson — chose PC Expo here to join each other onstage for the first time to sell OpenDoc to developers.

The 25 mid-size companies that bought into the component-software technology included Metrowerks Inc. of St. Laurent, Quebec; Visioneer Inc. of Palo Alto, Calif.; Bitstream Inc. of Cambridge, Mass.; and Delta-Point Inc. of Monterey, Calif.

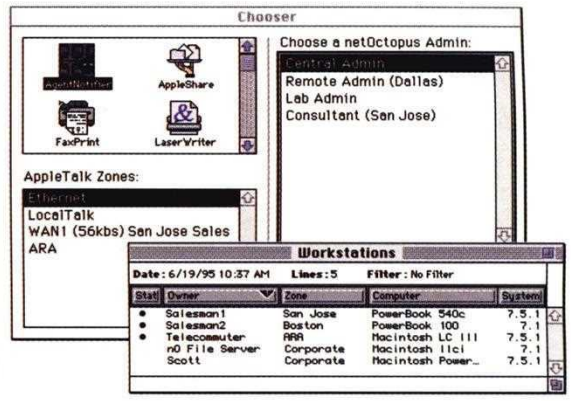
STEVEN BORNS

At PC Expo in New York last week, Novell CEO Robert Frankenberg touted the OpenDoc technology.

With the additions, OpenDoc now has 33 members, according to Jed Harris, president of Component Integration Laboratories Inc., the organization based in San Francisco that is promoting OpenDoc as an industry standard. Harris said OpenDoc offers Apple an opportunity to advance its cross-platform development while preserving the Macintosh's unique interface.

Spindler also offered reporters and analysts a progress report on the development of OpenDoc. He said the latest OpenDoc developers kit is shipping and that the first OpenDoc applications, referred to as applets, should be available by year-end. Spindler said Apple plans to bundle OpenDoc with Macs in 1996.

Industry observers, meanwhile, noted that the presence of the normally press-shy Spindler and Frankenberg at the OpenDoc announcement underscored their companies' commitment to the technology. "You don't get those two guys at an event unless it's very important to Apple and Novell," said Stan Tims, senior product marketing manager of Motorola Inc.'s RISC Microprocessor Division in Austin, Texas. □



The netOctopus update will let mobile clients notify the administrative program when they return to the network. Scheduled updates will run when the node reappears.

netOctopus 1.3 will reach mobile Macs

By Stephen Howard

Datawatch Corp. is preparing to unleash a new netOctopus, the network software installer and inventory tool for which it acquired U.S. marketing rights earlier this year.

Version 1.3, due to ship just before Boston's Macworld Expo in August, will ease the support of mobile users who are on the LAN only occasionally. The update will also broaden the program's support for Apple-events scripting as a means of controlling remote Macs and as a tool for customizing netOctopus itself. In addition, the new Power Mac-native version will gather information about Apple's new PCI-based Macs.

When equipped with Version 1.3 client software, mobile Macs will inform the netOctopus administrative software when they reconnect to the network. The administrative program will then trigger scripts to perform software installations or inventory scans. Currently, if a script executes when a machine is not on the LAN, that Mac is passed over.

netOctopus 1.3 will come with Apple-events scripts for installing programs that don't use Apple's Installer, notably Microsoft Word and Excel. The update will also come with new and improved scripts for exchanging inventory and software-usage-metering information with Excel, Claris Corp.'s FileMaker Pro and MacVONK Inc.'s Ragtime.

These database and spreadsheet programs will become repositories for data that can be used to control netOctopus settings.

When scanning for hardware setups and software inventories, Version 1.3 will include data on PCI cards; new CPU types; new kinds of Mac keyboards; and IDE (Integrated Drive Electronics) drives, which are found in the 630-series Macs, the PowerBook 150 and Apple's upcoming PowerPC-based PowerBooks.

The program will also trigger virus scans on Intel-standard PCs using Datawatch's Virex for PCs.

netOctopus prices range from $940 for 20 users to $4,200 for 100 users. Upgrade pricing for sites on a maintenance contract will be $14 per node for 25 users and $7.60 per node for a 100-node network.

Datawatch Corp. of Wilmington, Mass., can be reached at (508) 988-9700; fax (508) 988-2040; octopus@datawatch.com. □

Xerox tunes its color laser line

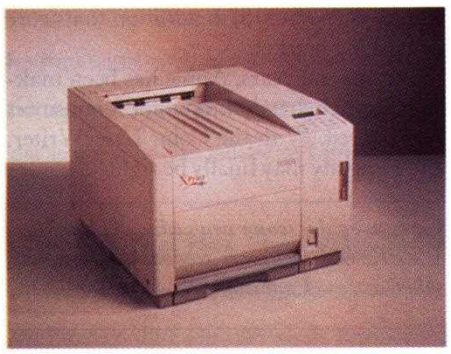
By Matthew Rothenberg

Xerox Corp. last week announced new tweaks to its line of color laser printers, unveiling three new models at PC Expo in New York.

The Xerox XPrint 4915, 4920 and 4925, all slated to ship next month, are based on the same Hitachi engine as the $6,095 Xerox 4900 Color Laser Printer. Each prints up to three full-color or 12 black-and-white pages per minute, the company said.

The XPrint devices also feature Xerox Intelligent Color, a new proprietary halftoning and screening technology that the company said allows users to choose among seven color and two halftone modes.

All three new models include PostScript Level 2 and 35 Type 1 fonts. Each runs on a 25-MHz AMD 29030 RISC processor and accommodates up to 48 Mbytes of RAM. The printers will ship standard with LocalTalk, Centronics parallel and RS-232C serial interfaces; multiprotocol Ethernet and token-ring interfaces will be optional.



Smoother color: The Xerox XPrint 4920 features proprietary color-matching technology and microfine toner to output 600 by 600 dpi.

- **The XPrint 4915,** priced at $6,895, offers the same 1,200-by-300-dpi interpolated resolution as the 4900 but includes Intelligent Color and will ship with 16 Mbytes of RAM, compared with 12 Mbytes for its predecessor.
- **The XPrint 4920,** priced at $7,995, will come with 16 Mbytes of RAM. It will support resolutions of 600 by 600 dpi and use microfine toner.
- **The XPrint 4925,** priced at $9,495, will offer the same features as the 4920 but will ship standard with 24 Mbytes of RAM, allowing users to print multiple copies of collated documents.

Xerox Corp.'s Office Document Systems Division of Rochester, N.Y., can be reached at (800) 275-9376; fax (800) 532-9979. □

Adobe adds to empire: Deal to buy DTP rival Frame signed

By Jon Swartz

Adding to its string of buyouts, Adobe Systems Inc. last week signed a deal to acquire Frame Technology Corp. for about $500 million in stock.

Under the agreement, which is subject to the approval of Frame shareholders in September, the operations of San Jose, Calif.-based Frame will be folded into Adobe.

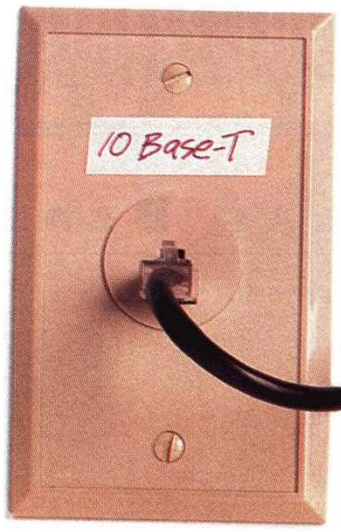
Adobe CEO John Warnock said FrameMaker, Frame's desktop publishing software for technical users, will be melded into Adobe's product line, which includes PageMaker, the leading Mac DTP program.

"Our products are complementary, not competitive," Warnock said in a statement. Warnock said the buyout improves Adobe's presence in the Unix market, where Frame has a strong following.

In related news, Adobe announced a sharp jump in profits on higher sales for its second quarter ended June 2. The Mountain View, Calif., company said profits increased 96 percent, to $33.9 million from $17.3 million in the same quarter a year ago. Quarterly sales were $167.9 million, up 12 percent from $149.8 million last year. □

To our readers

Because of the holiday, MacWEEK will not publish July 3.



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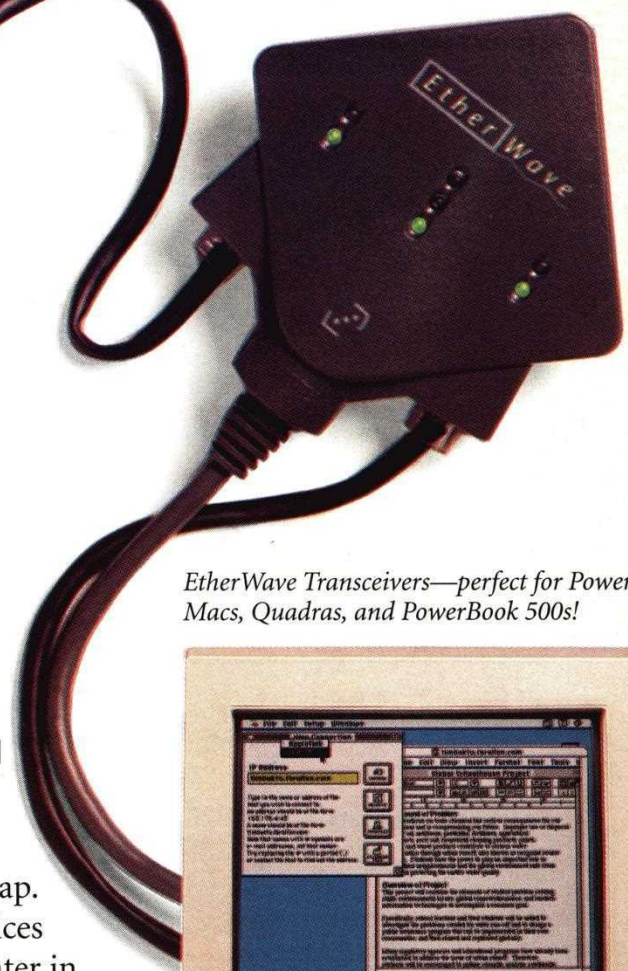

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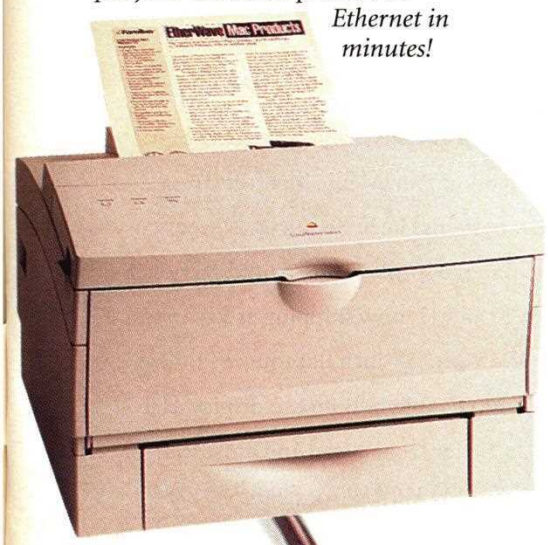

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Twin Turbo PCI card ships

Boasts real-time 24-bit graphics

By James Staten

Integrated Micro Solutions this month shipped a 128-bit high-performance graphics accelerator for PCI-based Power Macs that it claims allows users to move 24-bit images on screen in real time.

The Twin Turbo-128M, priced at $699, features a single-chip graphics accelerator based on a proprietary graphics engine and firmware.

The company said the card processes 16 eight-bit pixels at a time to generate image-redraw rates in excess of 100 million pixels per second. A display set at a resolution of 1,024 by 768 pixels contains more than 768,000 pixels that must be redrawn in less than one-thirtieth of a second from memory for the refresh to be invisible to the human eye.

A minimum rate of about 23.5 million pixels per second is required to ensure real-time movement at this resolution in eight-bit mode; 24-bit color requires four times that for real-time movement.

IMS said its improved screen-redraw performance will benefit business as well as graphics users. For example, the card improves scrolling speed in a typical word processor by more than 100 percent, according to the company.

The board also includes a video-playback accelerator that allows users to display full-screen QuickTime movies without software pixel doubling. Hardware color-space conversion permits software-based MPEG video playback; a QuickTime MPEG playback extension will be offered later this summer.

The Twin Turbo-128M supports screen resolutions up to 1,600 by 1,200 pixels in eight- and 16-bit modes and 1,152 by 870 pixels in 24-bit mode.

It also provides a hardware-zoom feature that does not pixel replicate and lets users magnify a work area and pan through it in real time.

Integrated Micro Solutions of San Jose, Calif., can be reached at (408) 369-8282; fax (408) 369-0128; ims.engr@applelink.apple.com. □

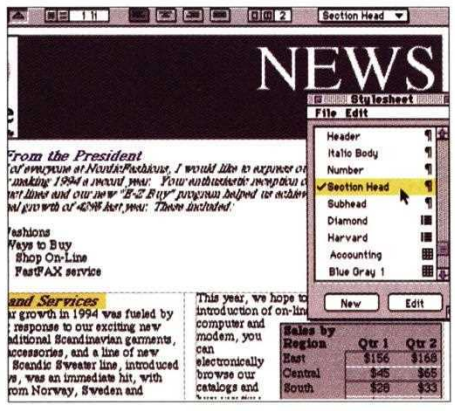
ClarisWorks 4 released

By David Morgenstern

Claris Corp. shouted "four" last week and teed off with the latest version of the company's popular integrated software package.

ClarisWorks 4.0 sports many text-handling and text-formatting features usually found in stand-alone applications.

The $129 software includes ExpressStyle, a palette of format settings for graphics, outlines, tables and text (see MacWEEK, May 22, Page 1).



In addition to a new format-settings palette, ClarisWorks 4.0 offers assistants for mailing labels, certificates and financial calculations.

Beta tester Art Dechene, a real estate broker based in Austin, Texas, said ClarisWorks 4.0 is "faster and slicker" than Microsoft Word. He said he thinks that Version 4.0's feature set will satisfy the needs of most business users. "ClarisWorks isn't bloated with features you never use," Dechene said.

Claris said current users can upgrade for $49. The company said it expects a fall release for the corresponding Windows version.

Claris Corp. of Santa Clara, Calif., can be reached at (408) 987-7000 or (800) 544-8554; fax (408) 987-3932; info@claris.com. □

Newer branches out with DIMM options

By James Staten

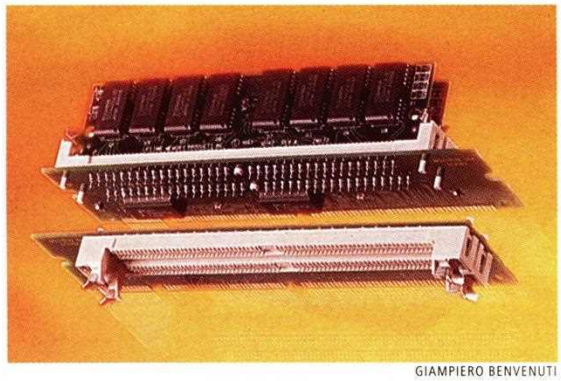
Sites lucky enough to have a Power Mac 9500 can now fill its slots full of RAM — old and new — thanks to Newer Technology, which recently shipped new DIMMs as well as an adapter that lets users plug SIMMs into the new Mac's memory slots.

The company shipped DIMMs, or dual in-line memory modules, in capacities from 4 Mbytes to 64 Mbytes and priced from $200 to $2,500. Limited quantities of 128-Mbyte DIMMs are available for $11,995 each.

The DIMM Tree, priced at $68, lets users plug two like-capacity 32-bit SIMMs into a single 64-bit DIMM memory slot. The SIMMs install perpendicularly to the adapter and, therefore, block the adjacent DIMM slot. Left- and right-facing adapters let users install DIMM Trees without blocking more than one DIMM slot.

Unlike SIMMs, which must be installed in pairs, DIMMs and DIMM Trees can be installed individually. However, any pair of like-capacity DIMMs or DIMM Trees can form an interleaved 128-bit data path to provide better performance.

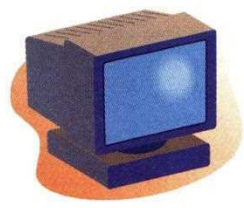
Newer Technology of Wichita, Kan., can be reached at (316) 685-4904 or (800) 678-3726; fax (316) 685-9368; sales@newertech.com. □



GIAMPIERO BENVENUTI

New life for old RAM: DIMM Trees let users plug two like-capacity SIMMs into a single 64-bit DIMM memory slot.

DISPLAY BEAT



Mitsubishi ships jumbo screen. While not as big as the display at Dodger Stadium, the new MegaView Pro displays from Mitsubishi Electronics America Inc. of Cypress, Calif., are the largest available for business buyers, the company said. The MegaView Pro 37 and MegaView Pro 42 house, respectively, 37- and 42-inch, 0.85mm-dot-pitch tubes equipped with an Invar shadow mask, on-screen display controls, 5-watt stereo speakers and a dynamic-beam-focusing electron gun.

The $10,250 MegaView Pro 37 has a maximum Mac resolution of 1,280 by 1,024 pixels and supports two simultaneous video inputs, while the $13,000 MegaView Pro 42 can output Mac images at 1,024 by 768 pixels and supports the high-definition television 16-9 aspect ratio. Phone (714) 220-2500 or (800) 843-2515; fax (714) 236-6187; fax-back (800) 937-2094.

Panasonic takes on the Apple AV display. Speech recognition may become routine to buyers of PanaMedia monitors from Panasonic Communications & Systems Co. of Secaucus, N.J.

The devices feature built-in stereo speakers and a unidirectional microphone. The PanaMedia 15 and 17, now shipping at $599 and $999, respectively, are based on 15- and 17-inch flat square Hitachi tubes, respectively, with a 0.27mm dot pitch. Both can display Mac images at 1,024 by 768 pixels and offer front-panel and on-screen settings in five languages. Phone (201) 348-7000 or (800) 742-8086; fax (201) 392-4760.

ViewSonic displays embrace TCO. While big images and multimedia sound probably won't hurt you, electromagnetic emissions might. The new ViewSonic 17PS display from ViewSonic Corp. of Walnut, Calif., complies with the recent Swedish TCO standard, which incorporates more-stringent rules than MPR II and stronger energy-consumption restrictions than the Environmental Protection Agency's Energy Star standard. The $1,095 display is based on a Hitachi 17-inch tube with a 0.25mm dot pitch; it projects Mac images at resolutions up to 1,600 by 1,200 pixels at 77 Hz and features on-screen settings for image geometry and color control. Phone (909) 869-7976 or (800) 888-8583; fax (909) 869-7958.

How true to print can a monitor get? Willow Six Technologies of San Clemente, Calif., is betting most pre-press houses aren't getting the same colors on screen that are coming off the press. MonitorRightProof, priced at $2,895, is a soft-proofing system that comprises a sensing device and software that can be used to bring any monitor into sync with printed output. The system measures ambient light; monitor brightness and contrast; and the RGB, white- and black-point, and gray-balance settings of the target paper type; then it sets the monitors to a matching color gamut. Phone (714) 492-1060 or (800) 547-8307; fax (714) 492-1060.

— By James Staten

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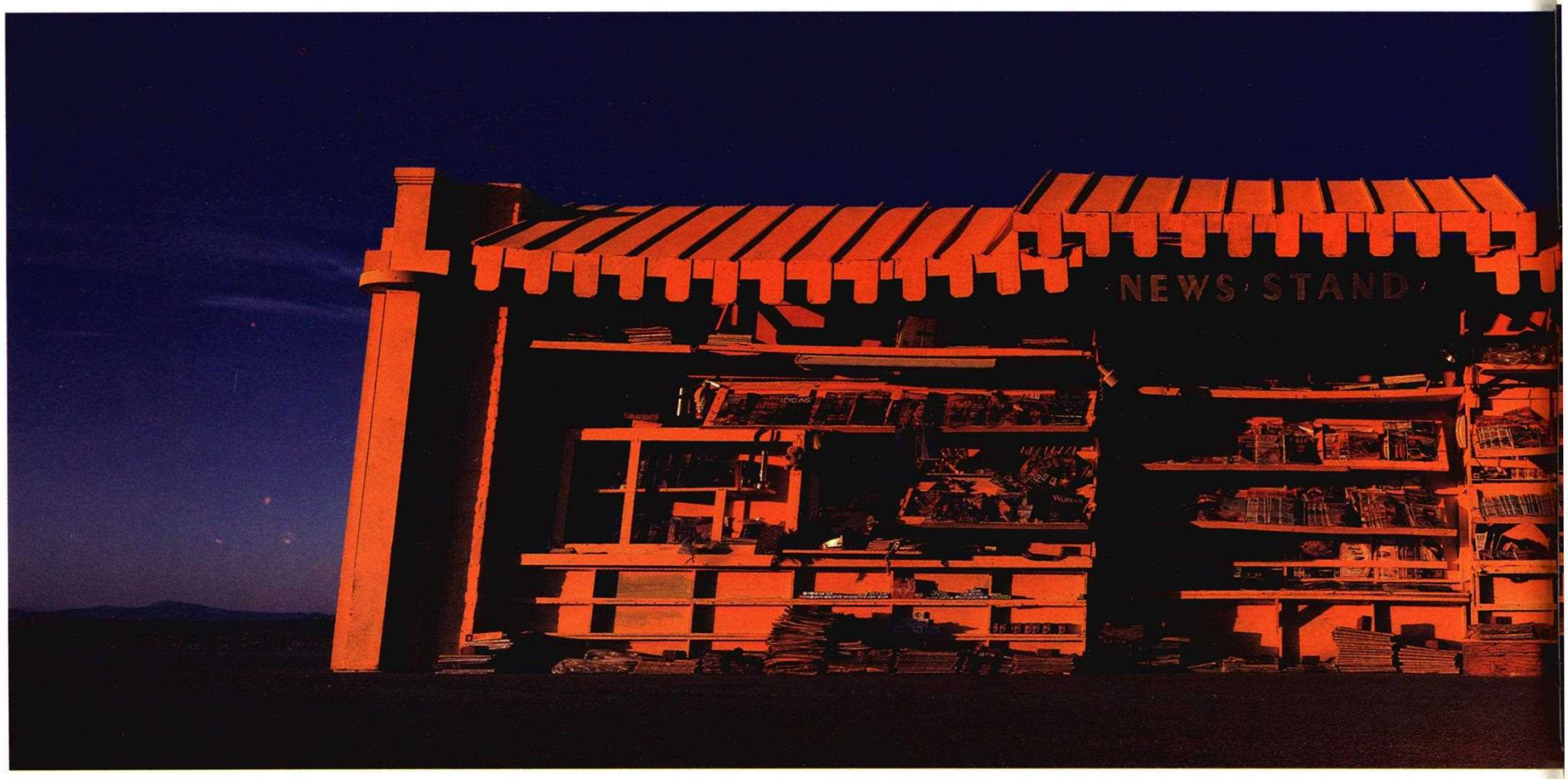

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Arrays to play on Jaz

By David Morgenstern

ProMax Technology Inc. said it expects to tune up its storage line in September when it releases arrays based on Iomega Corp.'s new Jaz mechanism, code-named Viper.

On display at PC Expo in New York last week, the speedy arrays will use sets of removable 1-Gbyte Jaz cartridges. Although the units will not offer the flexibility for greater capacities and performance levels of modular RAID systems using sealed drive mechanisms, the $100-per-cartridge replacement cost is much less.

Aimed at digital-video applications, the Fast SCSI-2 arrays will use Remus Lite software to provide RAID striping and mirroring capabilities.

The 2-Gbyte PR-2000 will be a two-bay enclosure that holds two Jaz drives. The $1,295 device will provide a sustained write data transfer rate of 8 Mbytes per second, ProMax said.

The $2,595 PR4-4000 will house four drives and support a total capacity of 4 Gbytes. ProMax said a striped array will offer a sustained write data transfer rate of about 10 Mbytes per second. The company said it expects read data transfer rates for both models to be about 15 percent slower than write performance.

Both systems will have average seek times of 12 milliseconds. According to ProMax, the Jaz mechanism's embedded-servo design reduces the need for thermal recalibration, which can drop frames during video capture and playback.

In other news, ProMax recently said it will offer a Fast and Wide SCSI-2 PCI card with its modular and fixed hard drive arrays. The 4-, 8-, 18- and 36-Gbyte systems cost $3,945, $5,445, $8,895 and $16,880, respectively.

ProMax Technology Inc. of Irvine, Calif., can be reached at (714) 727-3977 or (800) 977-6629; fax (714) 727-3546. □

How Jaz stacks up on the desktop

	PROMAX PR4-4000	PROMAX MODULAR*
Mechanism	Four Jaz drives	Two hard disks
Capacity	4 Gbytes	4 Gbytes
Speed	10 Mbytes/sec.	11.2 Mbytes/sec.
Initial cost	$2,595	$3,945
Media set	$400	$2,590

**While the array's Fast and Wide SCSI-2 drive modules are expensive, users can add 4-Gbyte mechanisms to increase capacity and enhance performance via PCI cards.*

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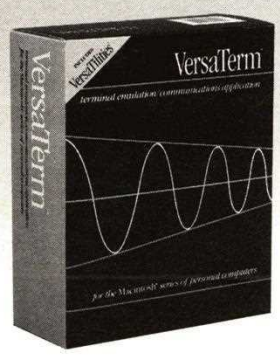

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Removable drive in wings

By David Morgenstern

Mega Drive Systems Inc. next month plans to launch new Mac versions of its Enterprise removable storage system.

The Enterprise 2 will be a two-slot enclosure that accommodates two 3.5-inch drive mechanisms or a single 5.25-inch device. Mega Drive said modules incorporating tape and magneto-optical drives will be available by year-end.

Each six-slot MX/500 can hold up to 45 Gbytes, but multiple units combined can offer 2.2 terabytes.

A standard Fast and Wide SCSI-2 unit without drives will cost $449 and will be compatible with modules used in the company's MX/500 and Enterprise 8 systems.

Mega Drive will also offer Enterprise 2 bundles that contain RAID software and an ATTO PCI card. A 4-Gbyte array with a pair of 2-Gbyte drives will carry a street price of $3,590; an 8-Gbyte model will be $5,190.

Mega Drive said it will ship a four-slot desktop model later this year.

At the high end of the Enterprise line is the recently shipped MX/500. The scalable system is based on a $9,560 six-bay enclosure that supports up to five active drive modules; uses a 25-MHz RISC processor; and supports RAID levels 0, 3 and 5.

The MX/500 features redundant controllers; hot spares; and hot swapping of drives, fans and power supplies.

Mega Drive Systems Inc. of Beverly Hills, Calif., can be reached at (310) 247-0006; fax (310) 247-8118. □

MicroNet bundles RAID for new PCI Macs

By David Morgenstern

MicroNet Technology Inc. this month bundled up RAID systems for the new PCI Macs and delivered entry-level CD-Recordable systems.

MicroNet's Raven Professional PCI packages include the company's RAID software, a Fast and Wide SCSI-2 PCI card, and either a single- or dual-drive array. The PCI card will be available in single- and double-SCSI port versions.

Single-drive bundles will be available in capacities of 1.8, 2 and 4 Gbytes for $2,649, $2,059 and $2,849, respectively. The 3.6-, 4- and 8-Gbyte dual-drive models will cost $4,819, $3,669 and $5,239, respectively. MicroNet said the 3.6-Gbyte configuration has a sustained data transfer rate of 15.4 Mbytes per second.

The company also released its Master CD Plus, a double-speed recorder. The $1,895 model comes with Astarte GmbH's Toast Pro authoring software, which supports hybrid and multisession standards.

Astarte's Toast Pro and Toast audio CD software are also available separately from MicroNet for $640 and $999, respectively.

MicroNet Technology Inc. of Irvine, Calif., can be reached at (714) 453-6000; fax (714) 453-6001. □

Indexicon comes to Mac

Word add-on eases indexing

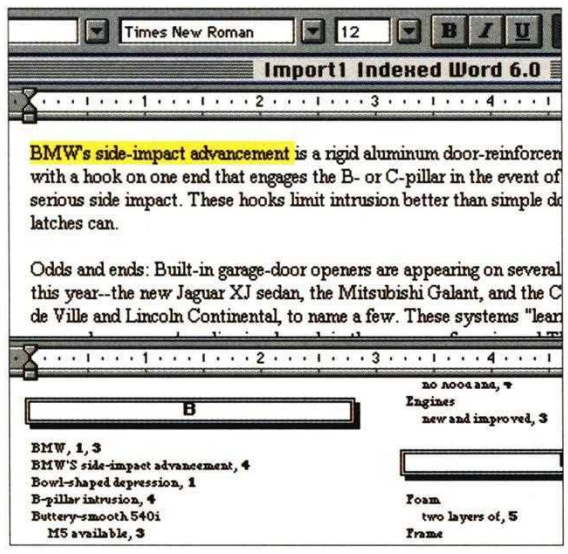
By David Morgenstern

Relieving the aches and pains of back-of-the-book index production, Iconovex Corp. this month released a Mac version of Indexicon, its cross-platform indexing utility.

The $249 Indexicon for the Macintosh runs as an add-on module to Microsoft Word 6.0. Iconovex said a Power Mac-native version is due for release by year-end.

The program uses a proprietary engine to analyze a document and generate an index. According to Iconovex, the program uses syntactic and semantic algorithms that can distinguish words in context and detect heteronyms, which are identically spelled words that have different meanings (see MacWEEK, Dec. 12, 1994, Page 6).

Indexicon uses Word's standard indexing labels to mark terms in a file, then compiles the index. Iconovex said the program can process up to 50 pages per minute on systems with 32 Mbytes of RAM, but average speeds are about 25 pages per minute.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this year--the new Jaguar XJ sedan, the Mitsubishi Galant, and the C
de Ville and Lincoln Continental, to name a few. These systems "lean
B
BMW, 1, 3
BMW'S side-impact advancement, 4
Bowl-shaped depression, 1
B-pillar intrusion, 4
Buttery-smooth 540i
M5 available, 3
Engines
new and improved, 3
Foam
two layers of, 5
Frame

Iconovex's Indexicon for the Macintosh expands on the built-in indexing features of Microsoft Word 6.0 and can generate an index automatically.

Users can adjust the level of detail Indexicon includes when creating indexes, and they can mark individual terms or exclude portions of a document before reindexing. Users can also alter index formats via Word's built-in editor.

The company said it expects to ship later this summer a Mac version of LexEdit, a $49.95 tool for creating custom dictionaries for Indexicon. The software is available for Windows versions of Word 6.0 and WordPerfect 6.0.

Iconovex Corp. of Bloomington, Minn., is at (612) 896-5100 or (800) 943-0292; fax (612) 896-5101; iconovex@ix.netcom.com. □

Calendar Manager 5.0 offers users new views

By James Staten

Russell Information Sciences this month will ship a new version of its cross-platform group scheduling application.

Calendar Manager is a client-server event manager that lets Mac users share calendars with users of DOS, Windows and TeamLinks for VMS. The server runs under Novell NetWare or Digital Equipment Corp.'s VMS OS; a version for Banyan Systems Inc.'s Vines will ship in July (see MacWEEK, Oct. 24, 1994, Page 10).

Version 5.0 — a jump from Version 1.0 that brings all platforms up to the same version number — adds a new Executive Diary View that resembles a paper-based diary. It offers two facing pages and allows users to display a view and to-do list or two views simultaneously. The upgrade supports drag-and-drop editing in all views, and group events can be created easily using the list of all resources and users on the system.

Other features include a Quick View window that lets users see multiple users' calendars side by side, R.S.V.P. note generation for group meetings, multi-access-level proxy support, wild-card searches for locating available resources, and Apple Guide help.

Calendar Maker 5.0 is priced at $58 per seat for 1,000 or more users. Pricing increases incrementally as the number of seats declines, the company said. Customers can mix and match platform clients to reach the 1,000-user mark, Russell said. Upgrade pricing varies with the number of users.

Calendar Manager server software costs $995 for the first server. Additional servers can be purchased at a 40 percent discount if ordered within 90 days of the initial purchase.

Russell Information Sciences of Laguna Hills, Calif., can be reached at (714) 362-4000; fax (714) 362-4040; cmsales@russellinfo.com. □

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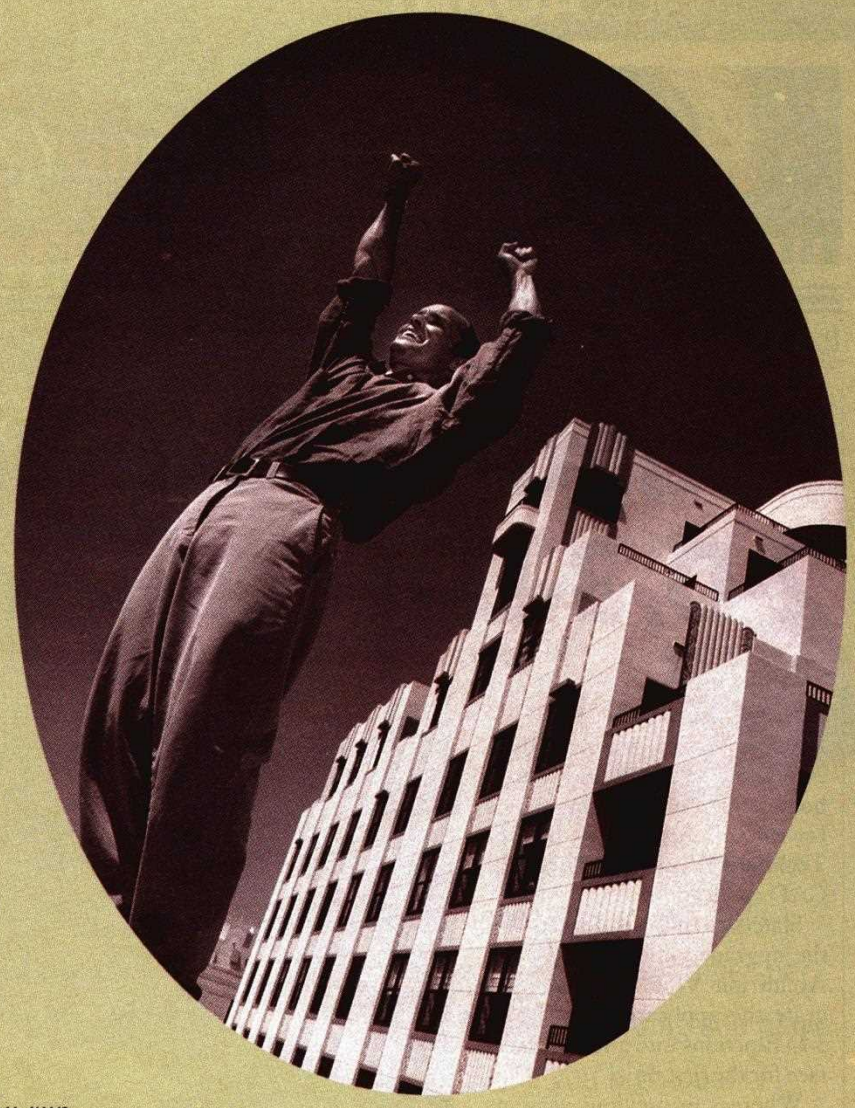

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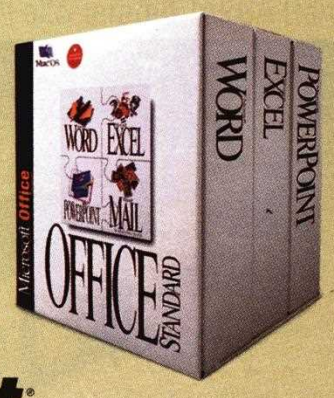

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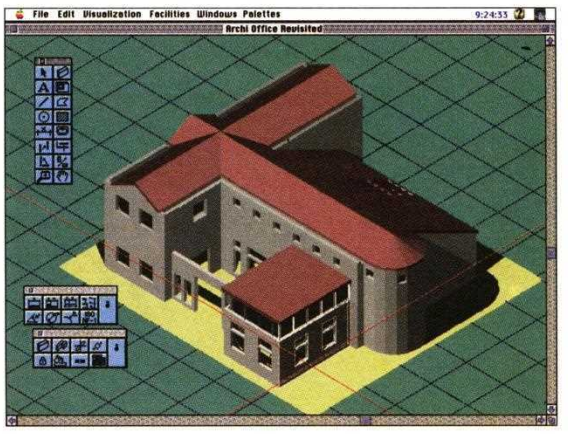
Architrion to integrate 2-D, 3-D technologies

By Cate C. Corcoran

Architects looking to blend their 2-D and 3-D work may find a home with a forthcoming major rewrite of Architrion, BAGH Technologies Inc.'s architectural CAD application.

Slated to ship in September, the upgrade will be called New Architrion VI 6 and will integrate the application's 2-D and 3-D functions into a single interface for the first time.

Whereas in previous versions of the $4,500 architectural program users toggled between 2-D and 3-D screens, each of which had its own tool set, the new version will let users select any tool from one main window.



New Architrion VI 6, scheduled to ship in September, will integrate 2-D and 3-D architectural CAD tools and functions.

Users will be able to assign relationships between elements of models with a forthcoming intelligence function called DesignTrack. For example, an architect could set the application to connect all the columns drawn in a room to the ceiling and put them a specified distance apart, so if the room is expanded, Architrion will automatically make the columns longer or create additional rows to suit a wider room.

Unlike many CAD programs in which users work in 2-D, after which 3-D models are created by the application, Architrion's main work mode is 3-D, with users generating 3-D models with 2-D and 3-D data as they go. The new version will form live links between 2-D drawings and the 3-D models from which they are extracted.

See Architrion, Page 16

Big Shot aims at live capture

By Cate C. Corcoran

Dicomed Inc. recently announced a high-resolution camera back that will let studio digital photographers add some life to their work.

The Dicomed Big Shot, the company's first instant-capture camera back, is slated to ship in October for $45,000.

Made to work with Hasselblad and Mamiya cameras in 4-by-5-inch and 2.25-inch formats, the Big Shot will capture full-color or black-and-white digital images. The camera back, to be based on a 4,100-by-4,100-pixel, 6-centimeter-square CCD (charge-coupled device), will work with flash or continuous lighting, including strobes and tungsten lighting.

While the resulting exposure will be the equivalent of instant capture, the Big Shot's CCD will actually be exposed three times per capture. The camera back will use a liquid crystal tunable filter that changes phase three times to filter red, green and blue.

Using proprietary Mac software that controls and manages image acquisition, the Big Shot will capture TIFF images up to 48 Mbytes in size, which it will offload through a SCSI-2 interface in about five seconds. At this time, no internal storage is planned for the camera back.

Dicomed Inc. of Burnsville, Mich., can be reached at (612) 895-3000 or (800) 888-7979; fax (612) 895-3258. □

The $45,000 Dicomed Big Shot instant-capture camera back, shown in foreground, will produce 4,100-by-4,100-pixel TIFF images.

DuPont storms in with digital devices

Proofer, scanner and imagesetters

By Donna Raskin

In a surge of shipping, DuPont Printing & Publishing has released a slew of imagesetters, as well as a proofer and desktop drum scanner.

▶ **Imagesetters.** The company shipped imagesetters in two new lines, XEL and Celix.

The DuPont XEL 140 and XEL 180 are both capstan devices that produce resolutions ranging from 1,000 dpi to 2,540 dpi.

The XEL 140, at $29,500, has a 14-inch-wide image area, while the $49,500 XEL 180 has an 18-inch-wide image area.

Both machines feature a PostScript Level 2 software RIP, which can run on an Intel-standard PC or a Quadra 650 or higher Mac with a minimum of 64 Mbytes of RAM, 500 Mbytes of free disk space and System 7.

The XEL 140 and XEL 180 allow for roll capacity up to 200 feet and have take-up capacities of 25 feet.

The second line of devices is the Celix series, which includes three imagesetters and one computer-to-plate machine.

The Celix 2000 drum imagesetter, a two-page device, costs

See DuPont, Page 16

DuPont's Digital WaterProof inkjet proofer uses a single-pass, four-nozzle system to create four-up or six-up pages. The PostScript Level 2 RIP runs on a SPARCstation.

FOCUS ON

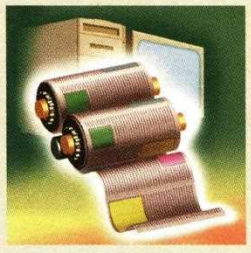
IMAGING HARDWARE

Computer-to-press catches on

By Steve Hannaford

Short-run digital color printing is a hot topic at service bureaus, pre-press shops, quick printers and printing companies. At the Drupa printing exposition in Germany in May, a slew of new products debuted, including upgrades to existing digital presses, copier-based units, and automated traditional or analog presses (see MacWEEK, May 22, Page 1).

These products have different media and engineering but output short print runs from 50 to a few thousand color pages at costs far below traditional presses, which require runs of at least 5,000 for cost savings. All involve sending a four-color PostScript file directly to a device more like a printing press than a desktop printer, and most let users do so from the Chooser. Digital printing also bypasses film and platemaking.



Improvements

The E-Print 1000 digital press from Indigo Ltd. of Greenwich, Conn., allows direct digital printing using wet toner

See Focus On, Page 16

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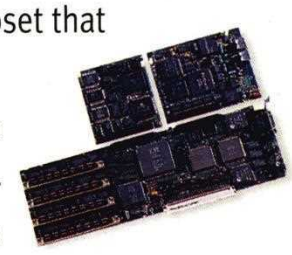

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SCREEN TEST

Mac helps 'Judge Dredd' sound off

LARRY BRAZIL

Hollywood Pictures' action thriller "Judge Dredd," starring Sylvester Stallone, illustrates the growing importance of Mac-based digital audio editing in motion picture production. Directed by Danny Cannon, the film will be released this week.

Technicians at the Saul Zaentz Co. Film Center in Berkeley, Calif. (pictured), handle three categories of film sound: dialogue, foley (sound effects) and ADR (automated dialogue replacement).

Location sound, dialogue and effects tapes are first processed in the transfer room, where they are backed up to an Exabyte tape drive before operators load them onto a phalanx of Micropolis drives with 2-, 3.6- or 4-Gbyte capacities. These are hooked to a Fiber Distributed Data Interface network controlled by a Crescendo Communications Inc. Model 1000 concentrator.

AppleTalk is piggybacked on the network so that nonsound data can be shared. The network, along with most of its components, comprises the SonicSystem digital audio system from Sonic Solutions.

Sound editors in networked suites then match the digitized sounds to SMPTE code on various scenes from the film, which are digitized using Radius Inc.'s VideoVision Studio card. Editing suites use Quadra 950 and 650 machines. Each machine is equipped with 28 to 40 Mbytes of RAM and Sonic Solutions' SSP-3 digital audio card and runs SonicSystem edit-decision list (EDL) software.

Each card handles four channels, with three software-controlled voices. Editors add or enhance sounds if needed using GRM Tools, a sound-synthesis package from the Institut National de l'Audiovisuel of Paris.

Some rooms also use Mac IIci machines equipped with Digidesign Inc.'s ProTools digital audio cards and Sound Tools 2.5 editing software, and an E-Mu Systems Inc. EIII XP synthesizer. A JLCooper Electronics CS-10 Midi Controller controls the on-screen faders, preserving the mechanics of traditional audio mixing.

After editing scenes, editors save the EDLs to floppy disks, which are taken back to the transfer room. There, technicians assemble the sounds and convert them to the desired format. Finally, the sounds are mixed live as the film plays back.
— By John Poultney

DuPont

From Page 14

$59,500. A punch option is $9,000. Its resolution ranges from 1,219 dpi to 3,658 dpi, with a maximum image area of 14 by 20 inches.

Crosfield Electronics Ltd., a subsidiary of DuPont and Fuji-Film Electronic Imaging Ltd., developed the PostScript Level 2 RIP, which runs on a Power Mac, which is not included in the package.

The $140,000 Celix 4000 imagesetter, also an internal drum machine, is driven by a RIP running on a Sun SPARCstation. Maximum image area is 30 by 25 inches. Imaging times range from just over a minute for a 1,219-dpi image to just over four minutes for a 4,876-dpi image.

The Celix 8000 drum imagesetter, which is priced at $275,000, uses a PostScript Level 2 RIP running on a SPARCstation and features a maximum image area of 40.3 inches by 43 inches. It can output 12 punched, imposed and plate-ready eight-page-format films in one hour, according to the company.

The Celix 8000 computer-to-plate device, priced at $350,000, is based on the Celix 8000 imagesetter. It can output plates of 21 by 25 inches and 41 by 35.5 inches, as well as imposed flats of 8.5 by 11 inches. Resolutions include 1,219, 1,828 and 2,438 dpi.

▶ **Proofer.** The Digital WaterProof system, an inkjet proofer, is precalibrated to match a number of media, such as Chromalin, and printing processes, including lithography, gravure and flexography. The device outputs one inch of an image per minute at 300 dpi.

Priced at $140,000, the Digital WaterProof system comes with a SPARCstation running a PostScript Level 2 RIP, with 32 Mbytes of RAM, a 535-Mbyte hard drive and an external 2-Gbyte drive. The package also includes a densitometer, modem and Ethernet interface.

The Digital WaterProof system uses a single-pass, four-nozzle system to print on gloss, matte and publication stocks. Supported paper sizes, for four-up to six-up printing, include 14 by 14 inches, 14 by 28 inches and 28 by 28 inches. The device uses a single multicolor ink cartridge that costs $458.

A $30,000 option includes DuPont's color-management software and a spectrophotometer.

▶ **Scanner.** The Crosfield C240 drum scanner, which costs $29,950, can scan images up to 11 by 11.8 inches.

The C240 uses a photomultiplier tube to scan reflective and transparent images at resolutions up to 4,000 dpi, capturing 12 bits per pixel. It connects to the Mac via SCSI and includes Adobe Photoshop plug-in software.

DuPont Printing & Publishing of Wilmington, Del., can be reached at (302) 633-1501 or (800) 538-7668; fax (302) 892-7245. □

Architrion

From Page 14

New Architrion will let users work in an infinitely large area, constrained only by system resources. Previous versions were limited to an area 32,000 units square of whatever unit of measure was employed, which was problematic to users drawing in very small units, such as millimeters.

The company said it has licensed ACIS solids modeling technology from Spatial Technology Inc. for New Architrion's built-in solids modeling, slated to include Boolean operations for complex shapes.

Users of Architrion 5.7 or 5.8 can upgrade for $795. Users who purchased Version 5.8 after May 1 can upgrade free.

BAGH Technologies Inc. of Montreal can be reached at (514) 273-0522 or (800) 561-0522; fax (514) 273-3059; bagh@can.org. □

FOCUS ON

From Page 14

technology with vivid colors. The latest software offers enhanced customization of pages and new finishing equipment for binding and folding. Agfa, a division of Bayer Inc., of Ridgefield Park, N.J., added similar improvements to its dry-toner ChromaPress printing press, which is based on technology from the Belgian company Xeikon N.V.

Other Xeikon-based digital presses include the DCP-1 (marketed in the United States by AM Multigraphics of Mount Prospect, Ill.); DigiPress from Barco Graphics Inc. of Vandalia, Ohio; and the Pennant from IBM Corp. of Armonk, N.Y.

At Drupa, Scitex America Corp. of Bedford, Mass., and Xerox Corp. of Rochester, N.Y., jointly announced a copier/printer, Scitex Spontane, with Scitex color-matching technology built in.

These units have enhanced software for custom data. Xeikon-based machines also have the advantage of offering duplex, or two-sided, printing, high speed, and high color quality. Also in the copier realm, Canon USA Inc. of Lake Success, N.Y., introduced the highest end of its color copier line, the CLC X, a duplex printing PostScript device.

"If you find the right markets ... [digital printing] can be a profitable business."
— Jay Beber

At the same time, conventional sheet-fed press manufacturers are making it possible to automate offset printing, basically running presses from a Mac. At Drupa, Heidelberg, which is based in Heidelberg, Germany, unveiled its QuickMaster-DI, a compact sheet-fed press that allows for direct imaging on plate and automatic loading of those plates.

Market advantages

These color digital presses and allied machines have three major market benefits. The first is short-run production. Printing between 50 and 1,500 copies of a color document has been cost-prohibitive until now. With digital presses, the exact price depends on overall volume and specific technology but ranges from 20 cents to $2 per two-sided color page.

A second advantage is quick turnaround. Bypassing film processing, platemaking and press make-ready stages leads to major savings in time, as well as the capability to proof directly on the press.

Personalization or customization, a third advantage, allows for changing text or images on each page — plugging in an entry from a database, much like a mail-merge program but with color and images.

Utilizing these benefits, first-generation digital press owners have been able to penetrate markets such as trade-show publications, real estate promotions and high-end sales prospectuses.

Jay Beber is a principal of the printing company D.F. White Group of New York, which adopted Xeikon technology early on and is now approaching profitability. "If you find the right markets that need this technology, this can be a profitable business," he said.

Quality questions

As good as the dry-toner machines are becoming, many believe that their quality does not match that of high-end color printing. Toner colorants don't match ink colors, spot colors are limited or absent in some of the technologies, and only a limited range of substrates can be printed on. Moreover, the high cost of consumables in some models, along with difficulty in maintenance, have made profitability tricky.

While these issues have caused potential buyers to wait for the next generation of machines, steady technological improvements shown at Drupa and the growing options make it clear that direct digital output is durable.

"Possibly the most successful companies will be those that use digital presses as part of a comprehensive printing strategy," said Kevin Nathanson, program manager at R.R. Donnelley, a Chicago-based printer that owns a wide selection of direct digital printers. "We don't see it as a stand-alone solution." □

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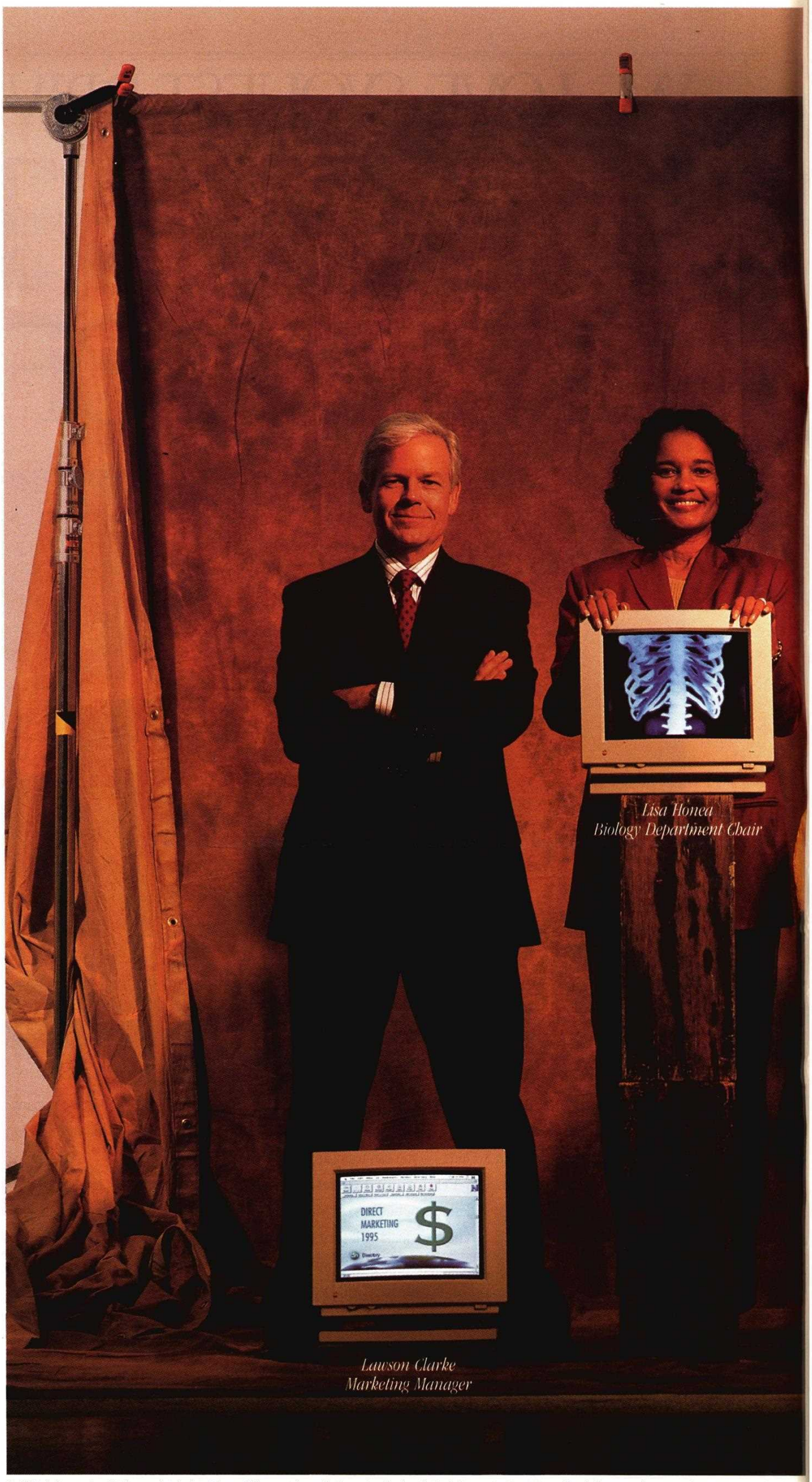

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Biology Department Chair

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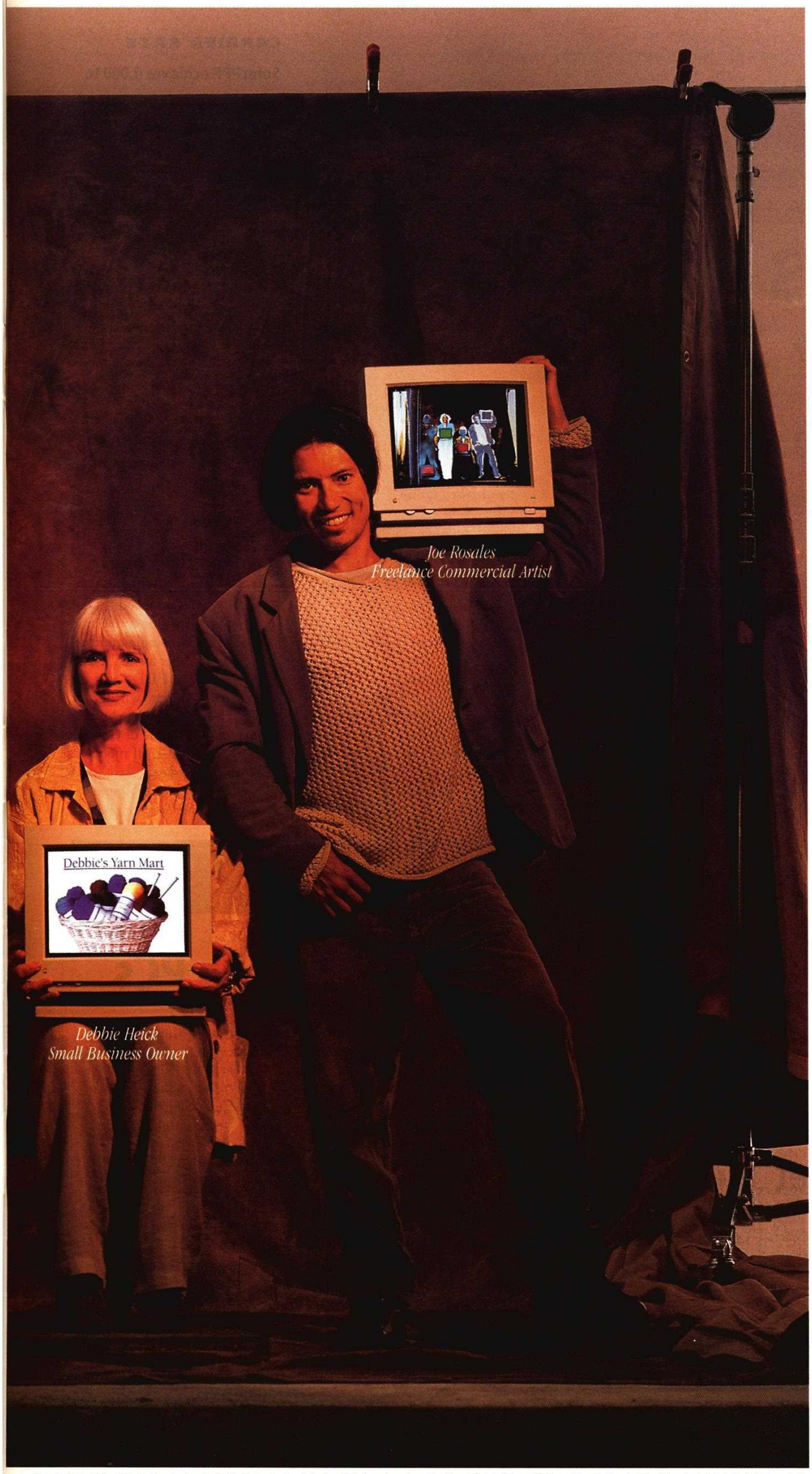

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CARRIER RATE

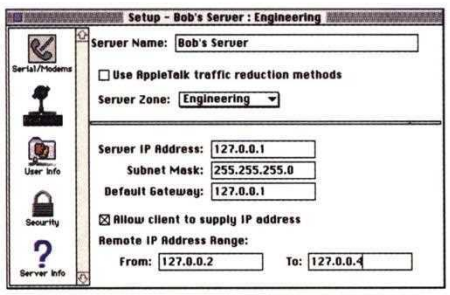
SonicPPP achieves 4,000 to 5,000 characters per second sending AppleTalk over Point-to-Point Protocol.

QuickStream/3 has free client

By Stephen Howard

Sonic Systems Inc. is lowering the boom on remote-access pricing with a new dial-up device bundled with free client software.

QuickStream/3, available now for $999, has three serial ports for modems and a 10BASE T or thin-net Ethernet port. The device is aimed at workgroups and small businesses needing remote access with an Internet twist.



QuickStream Manager limits incoming TCP/IP addresses and enforces CHAP and PAP security.

"We have a requirement to get on the Internet any time of day or night," said beta tester John Williamson, director of Xpand Expo Inc. in Santa Clara, Calif. The free client "means everybody can carry around the same setup."

The box is based on the Point-to-Point Protocol (PPP) and puts AppleTalk packets on top of PPP for traditional Mac LAN services. The client software is Sonic's own AppleTalk-on-PPP implementation, the company said.

Most other makers of remote-access products charge a fee for the client software. Although it comes bundled with PowerBooks, Apple Remote Access 2.0 is $69 per user otherwise. InterCon Systems Inc.'s InterPPP, which works with a few vendors' remote-access servers, is $99, and Tribe Computer Works Inc.'s TribePPP, which provides AppleTalk-on-PPP for the company's own devices only, ranges from $6 to $15 per user.

The company said the 25-MHz 68360 processor running the QuickStream can drive its three serial ports at 115 Kbps. The box's flash memory holds 250 preconfigured modem initialization strings; those and other dial-in and LAN controls, including Challenge Handshake Authentication Protocol and Password Authentication Protocol settings, can be manipulated through the bundled QuickStream Manager software.

Sonic Systems Inc. of Sunnyvale, Calif., can be reached at (408) 736-1900; fax (408) 736-7228; sales@sonicsys.com. □

Companies ship, update fax packages

By Nathalie Welch

4-Sight L.C. recently delivered a cross-platform LAN fax package geared toward small businesses, while SoftArc Inc. added new features to its FirstClass fax gateway.

4-Sight Fax LS-30, priced at $999, includes software and a 19.2-Kbps network fax modem. Designed for businesses with 30 or fewer employees, the package is scalable; a second line can be added for $599. The system can support a total of four lines and 100 users.

Like the company's flagship 4-Sight Fax 3.0 package, 4-Sight Fax LS-30 also offers the Draggin' Drop interface that lets users automatically render, address and fax documents by dragging them onto a Finder icon. Inter-

See Fax, Page 22

Summer brings crop of switching hubs

Network vendors give users options

By Clifford Colby

Users don't have to fight for an abundance of switches, as Alantec Corp., Grand Junction Networking Inc. and Xedia Corp. bring in a new round of Ethernet switching hubs.

Alantec of San Jose, Calif., plans to ship in July the PowerHub 4000. The $6,950 device will initially come with 12 switched 10-Mbps Ethernet ports plus optional 100-Mbps Fast Ethernet ports for twisted-pair copper or fiber-optic. Alantec intends to ship in September a PowerHub 4000 with a 100-Mbps Fiber Distributed Data Interface (FDDI) port for $9,950.

The company released its PowerHub 6000 departmental switch this month. The $9,995 three-slot device has 12 10BASE T Ethernet ports and accepts an optional $1,000 Fast Ethernet card.

Grand Junction of Fremont, Calif., this week will announce the FastSwitch 10/100 FDDI. The 25-port switched Ethernet device will be available with three FDDI options: a dual-attached FDDI port with a fiber-optic connection for $8,995, a single-attached FDDI port for fiber for $8,295 and a single-attached FDDI port for twisted-pair copper wiring for $7,775. The device will include an expansion slot for one of Grand's Fast Ethernet or FDDI modules.

Wilmington, Mass.-based Xedia released in May its $3,750 six-port

See Switches, Page 22

eWorld client to access Net

By James Staten

Apple this week will ship a new version of the eWorld client that offers access to most Internet services, except the biggest: the World-Wide Web.

The update adds a host of other capabilities, including e-mail filtering and forwarding, multiple address books, TCP/IP connections, and a built-in QuickTime viewer. In addition, eWorld 1.1 rolls in a collection of features that have been distributed separately over the past six months, such as custom interfaces, text-to-speech synthesis and publishing tools.

The Internet On-Ramp area gives users access to FTP sites, newsgroups, Gopher servers and Internet mailing lists. On July 17, Apple will make InterCon Systems Corp.'s WebShark browser available to eWorld members as well. Rather than being integrated into the eWorld client, WebShark will be a separate program that launches via Apple events whenever users attempt to access a

See eWorld, Page 22

FOCUS ON

INTEROPERABILITY

Cable TV channels data to PCs

By James Staten

Analog modems may have reached their speed limit at 28.8 Kbps, yet the level of on-line interactivity that users crave is still well beyond reach. Basic Rate Interface Integrated Services Digital Network provides up to 128 Kbps, but for full-motion video, stereo sound and even Internet links, computer users may be turning to a different long-distance technology: cable.

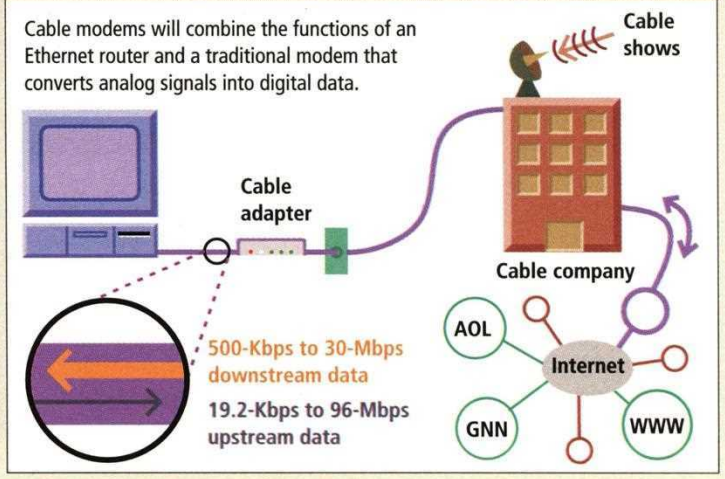
Long known for its poor long-term outlook and weak customer support, the cable industry is building and testing TCP/IP-ready WANs whose pipes provide throughput from 500 Kbps to 30 Mbps — more than 1,000 times speedier than today's quickest modems.

"It's such immense bandwidth," said market researcher Gary Arlen, president of Arlen Communications Inc. of Bethesda, Md.

Neil McManus, executive editor of San Francisco-based Digital Media, A Seybold Report, said: "The response I've heard from the early trials has been overwhelming. People are showing up at [cable companies'] doors with checks in hand."

See Focus On, Page 22

Interactive cable's asymmetric model


Cable modems will combine the functions of an Ethernet router and a traditional modem that converts analog signals into digital data.
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Fax

From Page 20

face improvements include new, easier-to-understand icons for basic functions, such as sending a new fax or resending a fax.

With the new package, users can create subgroups within address books and import addresses from databases. The package offers gray-scale faxing with 256 shades. An Option Print capability lets users toggle between faxing and normal printing via user-selectable hot keys.

The small-office package works with 4-Sight's $1,690 Direct Inward Dialing option for delivery of faxes to individuals and supports the PC Link 2.0 Windows client, which starts at $495 for 10 users. An e-mail-integration option is $499.

SoftArc's FirstClass Fax Gateway 2.0 for Macintosh, also available now, is $495; current owners can download upgrades free. The new gateway lets users fax documents simply by addressing FirstClass messages.

Other enhancements include gray-scale faxing, improved notification of delivery status and enhanced multihop name resolution.

4-Sight L.C. of West Des Moines, Iowa, is at (515) 221-3000 or (800) 243-2516; fax (515) 224-0802 or (800) 448-3299.

SoftArc Inc. of Markham, Ontario, is at (716) 871-6724 or (800) 364-1923; fax (905) 415-7151. □

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World Wide Web
A magical land of graphics, sound, movies, hypertext, and interactivity. Check it out!

eWorld's Internet On-Ramp gives members access to FTP servers, Usenet newsgroups, Gopher servers and Internet mailing lists.

eWorld

From Page 20

World-Wide Web service.

The new client's Mail Assistant creates custom filters for routing mail to local folders or to other e-mail addresses. Users can automatically append predefined text or signatures to messages or send mail as an attachment within another message. The program also includes Access Assistant, an off-line helper utility similar to Apple Guide that includes the full database of eWorld's local-access phone numbers.

The new eWorld client can be downloaded from the service or ordered by phone at (800) 775-4556. Apple said all Macs shipped after July 16 will include the new client. □

Switches

From Page 20

MADswitch AUI . The switch can be set up for 10BASE T connections, but as many as four of its ports can be configured for thicknet Ethernet connections. The 10-Mbps Ethernet device can be managed through SNMP (Simple Network Management Protocol) or a Telnet terminal interface; users can also configure the switch through a keypad and set of LCDs on the hub's front panel.

For those trying to slim down for summer, Xedia plans to offer in July its $2,395 MADswitch Lite. The six-port device will be similar to Xedia's other 10-Mbps switches but will lack a front-panel keypad and LCDs. Users will be able to manage the device with SNMP or Telnet.

Xedia said it will soon release some high-speed modules for its switch line.

In related news, Digital Equipment Corp. of Maynard, Mass., this month released its DECswitch 400, a departmental switch for connecting Ethernet nodes to Asynchronous Transfer Mode (ATM) backbones. Users can create virtual LANs with the switch and manage the device with SNMP.

The five-slot chassis accepts four Ethernet or 155-Mbps ATM modules; the fifth slot is solely for a $5,495 management module. The DECswitch 400 chassis costs $3,650, and Digital is offering $9,150 single-port and $12,595 dual-port ATM modules and $4,550 six-port and $5,695 eight-port Ethernet modules. □

FOCUS ON

From Page 20

The target is consumers. Intel Corp. of Santa Clara, Calif., which builds cable-connection devices for current trials, estimates that more than 30 million homes now have a personal computer and cable service, and 70 percent of homes will have both by 2000.

"For [cable companies], this is another way to draw revenue," Arlen said.

And not just cable companies. On-line services, such as America Online Inc., CompuServe Inc. and Prodigy Services Co., as well as companies experimenting with interactive television, including Oracle Corp. and Apple, are all moving to take advantage of cable's bandwidth.

According to Steve Walden, executive director of Prodigy of White Plains, N.Y., the attraction is more than just throughput. Cable networks don't tie up a phone line, and they eliminate the lengthy dial-up and sign-on process. "When you turn on the computer you are on the network," he said.

Which network? All the current trials being conducted link PCs to the Internet through user-side cable modems, which are devices that combine the functions of a LAN router and a modem.

"[PCs] connect like you would to a network, meaning you are always on," said Tom Waldrop, Intel media relations manager. "Some modem technology is included to take the analog signal and convert it to digital data that a computer can read."

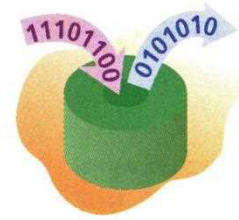
The cable networks are based on Ethernet protocols, including TCP/IP, making them ideal for high-speed Internet connections, Waldrop said. Apple said it sees cable modems attaching to ports for Ethernet or P1394 (a k a FireWire) at the back of future Macs.

The network pipe itself is two-way hybrid fiberoptic/coaxial cable configured in an asymmetrical scheme. The majority of data is carried downstream to the user over wide electromagnetic bands, while smaller bands carry commands and responses upstream to the cable provider.

As is the case with nonswitched Ethernet, however, cable networks are shared, and the total bandwidth is split among all connected users. If one user decides to play a video that ties up a large chunk of bandwidth, all other users suffer. This sharing derives from the cable companies' tree-structured networks, where all users are wired to one central hub. But the companies are moving to a distributed model that will connect smaller groups of users to multiple points of presence, decreasing the likelihood of a network slowdown.

Cable modems currently cost between $500 and $2,000, though prices should drop as usage increases. Nonetheless, the day prices reach consumer levels may be more than two years off. Not coincidentally, widespread trials of the interactive PC-connected systems won't begin until late 1996. □

DATABASE BEAT



More 4D. ACI US Inc. this month released its 4D SDK, a $2,995 software developers kit that includes 4th Dimension, 4D Compiler, 4D Insider and an unlimited-user runtime license for custom application deployment.

ACI also revamped the current user license for 4D Server, doing away with hardware copy protection. Licensing is now software-based, and the server is configured for two concurrent users, with additional licenses for one, five and 10 users available. Users of 4D Server 1.2 can upgrade free. Phone (408) 252-4444; fax (408) 252-4829.

Butler serves the Power Mac. EveryWare Development Corp. of Mississauga, Ontario, recently began shipping Version 1.5 of its Butler SQL database engine. The update now runs native on Power Macs and includes ButlerLink/Web, a tool to help users access Butler over the Internet's World-Wide Web. Version 1.5 of Butler costs $249 for a two-user license and $1,995 for an unlimited one. Phone (905) 819-1173; fax (905) 819-1172; info@everyware.com.

Swimming with the big fish. Dolphin Technologies Inc. of Naples, Fla., is readying a major upgrade to nuBase Pro, the multi-user relational database it acquired from New Era Software Group Inc.

The update, Version 2.0, which the company said it hopes to have available in six to nine months, will run native on Power Macs. The company is also working on a multiplatform version of nuBase, which is based on the erstwhile dBASE Mac. Phone (203) 846-1205.

TrueAccess goes native. Blyth Software Inc. of Foster City, Calif., recently shipped Version 2.0 of TrueAccess, its database-access tool. The new release is native and contains more access controls, including one allowing administrators to limit the number of rows returned by queries. Current users of TrueAccess 1.0 can upgrade to Version 2.0 free. For new users, TrueAccess costs $2,499 for an administrator kit, $299 for an end-user kit, $3,499 for five user kits and an administrator kit, or $4,499 for 10 user kits and an administrator kit. Phone (415) 571-0222 or (800) 346-6647; fax (415) 571-1132.

Dating in 4D. Foresight Technology Inc. of Fort Worth, Texas, is now offering Version 2.0 of CalendarSet. The $195 addition to ACI US' 4th Dimension database that lets users track dates and events now allows users to drag files among windows and to Area-List Pro, the company's list-management tool. Phone (817) 731-4444 or (800) 701-9393; fax (817) 731-9304; sales@fsti.com.

Shareware database. Breitschwerdt Information Systems of Coraopolis, Pa., has available on its Web site a shareware version of macControl, its spreadsheet program coupled with a database. The $25 Mac application lets users store information and present it graphically. macControl can be downloaded from the Breitschwerdt Web site at http://www.bup.lm.com.

— By Clifford Colby

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Senior V.P., Worldwide Marketing and Customer Solutions of Apple Computer, Inc.

Andrew Lewis
CEO and President of DayStar Digital, Inc.

Charles W. Berger
Chairman and CEO of Radius, Inc.

Stephen Kahng
CEO and President of Power Computing

MacWEEK 200 Survey Results

Anita Malnig, Executive Editor/Features presents findings from the 7th Annual MacWEEK 200 Survey. This study focuses on the installation of Macintosh technology in the largest and most heavily invested Macintosh sites.

Keynote Address: Apple's Mac OS Licensing Strategy

Daniel L. Eilers, Senior V.P., Worldwide Marketing and Customer Solutions, Apple Computer, Inc.
Apple's licensing strategy is central to the company's plan to grow its installed base and increase the reach of the Mac OS, worldwide. Find out first hand what to expect from Apple during the year of the clone. Mr. Eilers will outline the company's plans and strategic partnerships with Mac compatible manufacturers.

Clone Summit: The Next Generation of Macintosh

Join the clone developers who are creating a whole new generation of Macintosh for an unprecedented discussion of the niches and needs addressed by these product.
Panel members include: Andrew Lewis, CEO and President of DayStar Digital, Inc.; Charles W. Berger, Chairman and CEO of Radius, Inc.; and Stephen Kahng, CEO and President of Power Computing.
Panel host: Henry Norr, Editor Emeritus of MacWEEK

Don't miss this exciting line-up of key industry players as the "Year of the Clone" unfolds. Space is limited to the first 200 attendees to RSVP.

Ready, get set, go: Publish a Web site

By Jeff Ubois

The Macintosh has always helped to define the leading edge of publishing technology, and now that the leading edge is moving to the Internet, users are discovering that Macs make inexpensive and easily administered World-Wide Web servers. These features let Web creators focus their attention on the real work — creating and maintaining the content — rather than on the details of system administration.

Once you get the right tools together, your focus should be on updating the content.

"A Web page on a Unix server can be like a software engineering project, while on the Mac it is more like desktop publishing," said Brad Schrick, a Palo Alto, Calif.-based consultant.

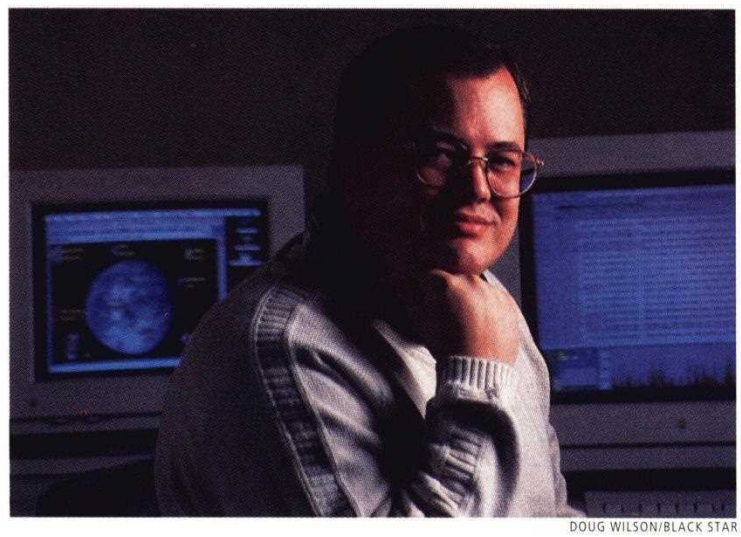
The Mac's performance doesn't necessarily lag behind Unix servers either. "People still heavily underestimate what a Mac can do," said Jon Wiederspan, a Mac Internet consultant in Redmond, Wash. "Two 9150s can match a $20,000 Unix box in terms of performance, and the installation, software and maintenance costs are lower."

Running a Web server doesn't require high-end Macs, however, and server software is available for less than $100. "I was handling 6,000 connections a day, with peak traffic of 400 to 450 connections per hour, on an SE/30 with MacHTTP, and it worked fine," Wiederspan said. "Now we are planning to go to dual 9150s with two 6100s on the back end for AppleSearch and the Butler SQL database, and we figure with that setup we can handle 200,000 to 300,000 connections a day."

Choosing the right network connection, hardware, server software, utilities and tools requires gauging the likely audience and the type of content being served. "The first thing you need to know when you are planning a Web site is your target audience," Wiederspan said. "The second thing is to guess what your load is going to be, not so much simultaneous connections as connections per hour, per day and per week, because that will determine the hardware platform and network connection you want to buy."

Planning for expansion is important too. "I always recommend three things to people: First, buy more disk space than you think you need; second, buy as much server power as you can afford; and third, prepare to get twice as many hits as you think you will get," Wiederspan said.

The key constraint on most Web sites is the speed of the network connection, so matching file sizes to available bandwidth is critical. Including enormous graphics on every page on a Mac connected over a 14.4-Kbps line is sure to frustrate visitors. For some users, however, the fast network connection is a given, and that means the real choices are picking appropriate hardware and software.



DOUG WILSON/BLACK STAR

Jon Wiederspan, a Mac Internet consultant, recommends knowing your target audience, anticipating an average day's load and planning for expansion when setting up a Web site.

On the hardware side, Apple is targeting the burgeoning market for Web servers with preconfigured systems designed to help users get their Web sites up quickly and easily. Prices for Apple's Internet Server Solution for the World-Wide Web start at about $2,900, and it consists of a CD-ROM bundle of software (which is not available separately) and a choice of a Workgroup Server 6150/66, 8150/110 or 9150/120.

The CD includes WebStar from Berkeley, Calif.-based StarNine Technologies Inc.; Navigator, a Web browser from Netscape Communications Corp. of Mountain View, Calif.; BBEdit, an HTML (Hypertext Markup Language) text editor with extensions from Bare Bones Software Inc. of Natick, Mass.; and AppleSearch 1.5 and AppleSearch CGI (Common Gateway Interface), which allows forms-based searching.

Server software

While Apple's offerings are solid, relatively few users need a new Power Mac to get a simple Web site up and running. Given an available Mac and an Internet connection, downloading server software from one of the sites listed below takes only a few minutes.

Until recently, MacHTTP, a shareware package now sold by StarNine, was the only Web server software available. This year, however, a whole crop of new servers have entered the market, including WebStar from StarNine; NetWings from NetWings Inc. of Fremont, Calif.; and two packages in beta testing, InterServer from InterCon Systems Corp. of Herndon, Va., and the AL*L Internet Server from Delphic Software Inc. of Redlands, Calif.

MacHTTP, however, still dominates the market, and there are several tools and tutorials designed to work with it. It provides basic HTTP (Hypertext Transport Protocol) services.

StarNine's WebStar is a rewritten, high-performance version of MacHTTP. It provides remote administration of multiple servers and improved Apple-events and AppleScript support. "WebStar is three to eight times faster than MacHTTP because it runs session threads internally with memory management and multitasking, so it doesn't matter that preemptive multitasking isn't part of the Mac operating system," Wiederspan said.

Through July 31, WebStar can be downloaded for $349 (corporate) and $169 (educational); after that date, prices will be $795 and $295, respectively. Registered corporate users who purchased on or before May 2 can download a WebStar upgrade for $99; educational institutions pay $79. Corporate site licenses are available for $20,000, and educational site licenses are $5,000; site-license upgrades from MacHTTP are $4,995 and $1,995, respectively.

NetWings (http://www.netwings.com) is built on ACI US Inc.'s 4th Dimension and offers private e-mail capabilities based on SMTP (Simple Mail Transfer Protocol), Post Office Protocol (POP) 3, public mailing list features, FTP and client processes in addition to acting as a Web server.

InterCon Systems (http://www.intercon.com) will ship its InterServer Publisher at the end of this month. The $795 Web package will include FTP and Gopher servers; built-in support for forms and clickable maps; prewritten CGI scripts and AppleScript; and an HTML editor, HTML Pro by Niklas Frykholm of Sweden, as well as HTML Mail Pro.

Later this year, InterCon Systems will ship a Mail Server that will support SMTP, POP2 and POP3 mail service; an Administration Server that will include domain name server (DNS) and Dynamic Host Configuration Protocol (DHCP); and a Socket-compliant Security Server. Pricing for these servers has not been set.

Delphic Software (http://www.delphic.com) plans to ship its AL*L Internet Server this summer. AL*L includes a number of other Internet services, such as DNS, FTP, SMTP and Network News Transfer Protocol (NNTP). Delphic is also developing mailing-list software as well as Windows and Unix versions of its Web server. A $995 version of AL*L will ship with FTP, Finger, Gopher, Web, SMTP Mail and the UDP (User Datagram Protocol); a $1,995 version will also include DNS, POP3, NNTP and bootp (a boot protocol), which will also be available as separate modules.

Following the recipe

The Web66 site at http://web66.coled.umn.edu/cookbook/machttp/machttp.html provides a cookbook approach to getting a Web site up in just 15 minutes.

Jon Wiederspan's pages at http://www.uwtc.washington.edu/computing/www/mac/ offer tutorials and a broad selection of tools, as does Grant Neufeld's Web site at http://arpp1.carleton.ca/grant/.

The Web page at http://www.biap.com/, formerly used to distribute MacHTTP, still has a good collection of resources, including a list of tools that can be downloaded.

For a look at Web sites built on Macintosh servers, Brad Schrick maintains a list reachable through http://brad.net.

In addition to the Web pages, the comp.infosystems.www.servers.mac Usenet newsgroup, the MacHTTP mailing list (archives are at several of the Web sites) and Neufeld's mailing list about Web tools (send mail to macwwwtool@arpp1.carleton.ca with the word "subscribe" in the message body or subject line) are particularly good places to ask questions (read the FAQs first). — By Jeff Ubois

While only a few Web server packages are available, there are literally dozens of tools and utilities that can help Mac Web site administrators with Web page editing, file indexing, forms, usage statistics, clickable maps, audio and CGI scripting. Many of them are available free on the Internet (see story, previous page).

Web toolbox

One of the most basic tools is an HTML editor, which aids in the creation of Web pages by inserting and checking formatting codes, links and content.

"My No. 1 essential tool, after the server software itself, is BBEdit with Lindsay Davies' HTML Tools for Web page authoring," said Grant Neufeld, an applications programmer at InfoDesign Corp. in Ottawa. Neufeld maintains the MacHTTP and WebStar frequently-asked-questions (FAQs) list.

Other HTML editors include SoftQuad Inc.'s $195 HoTMetaL Pro and a shareware package called HTML Web Weaver 2.5.1.

Until recently, MacHTTP was the only Web server software available, but it still dominates the market.

For CGIs, Wiederspan said he prefers NetCloak (http://www.maxum.com/maxum/) from Maxum Development Corp. of Streamwood, Ill., which lets users make pages sensitive to the type of user accessing a particular page, and NetForms, which adds support for forms. He also recommends TR-WWW, a full-text search engine and EveryWare Development Corp.'s Butler database.

The best information about these and other tools and utilities is on the Internet. In addition to the vendor Web pages, there are several sites devoted to Mac-based Web issues, and, taken together, they offer a complete catalog of options.

Surprisingly, security tools for Mac Web servers are rare. Security on Macs is inherently easier, users say, because those machines are not designed for remote logging or administration.

"WebStar, for instance, will only make files in its folder and below available to the Web, and then only the ones you specifically make visible by creating a link or publishing a full URL," Schrick explained.

Neufeld said, "Generally, Mac servers are run with only a small number of remote entry points, and most of those are only for retrieving, not modifying, information."

Clearly, the Mac is rapidly evolving into a fully functional and powerful Internet server. Although Macs account for only a small percentage of Web sites today, Apple still has a real chance to grab a sizable share of the market for small and medium-sized sites. That means users will have an increasingly rich set of options. □

CASE STUDY

MIT takes a journey to the information age

By John Poultney

The Institute wanted a home page that reflected its well-known reputation.

A sample session of the Massachusetts Institute of Technology's World-Wide Web server uncovers a multimedia representation of the solar system, complete with detailed photographs of planets and sound files to help with pronunciation of certain astronomy terms. But before MIT got caught in the Web, this and other information was not as easily accessible via its 5-year-old TechInfo system.

Active since March 1994, MIT's Web server (http://web.mit.edu) provides a home page and links to hundreds of other sites, encompassing more than 100 labs, offices and departments both on and off the MIT campus. Many of these feature their own home pages with additional links and a surprisingly diverse collection of information. Among the server's attractions are course syllabi, registration information, homework answer sets and multimedia discourses on various subjects taught at MIT. Even exams and answers are now available on-line. Browsers may also view home-page profiles of MIT students, faculty and staff.

The Web server is based on a Digital 5000 running the Ultrix operating system and CERN server software from the European Laboratory for Particle Physics in Geneva, but it also encompasses many secondary departmental servers, including Power Mac, Silicon Graphics and Sun systems. As is the case with many technical schools, the MIT campus, including the dorms, is networked. The server augments, and in most cases supersedes, TechInfo, the original service of the Campus-Wide Information System (CWIS) department.

Keep it current

Suzanna Lisanti is MIT's CWIS Facilitator, a new position created to assist departments in their electronic publishing endeavors. Working with a staff of five, Lisanti aims to educate MIT denizens in both the technical and cultural aspects of electronic publishing. The former is a rather straightforward concept of learning new technology, while the latter requires a fresh look at the needs, methods and habits of information consumers. Such management is necessary, MIT says, to avoid undue proliferation of material and to ensure that the right types of information are published. "We help departments think of the most useful information to publish — frequently asked questions, departmental contacts, registration processes," she said. "The goal is not to get rid of paper entirely," Lisanti said. "It's to keep information current."

Since electronic publishing provides much faster updating potential than paper-based efforts, the shift is a natural progression. Typically, electronic delivery is something that comes after traditional publishing and as such is added to the time line, but MIT finds that there is a way of integrating both types in a common time line.

To accomplish this, Lisanti's department assists in converting standard word processing files to Web pages with HTML (Hypertext Markup Language), although the government's Standard Generalized Markup Language approach is expected to play an important role in the future. With this approach, the same files are output to screen or printer. "Coding is the easy part," Lisanti said. "The real value is in thinking of information differently." A quick look at the site shows why this new thinking is important to MIT. Constant updates are needed to keep dynamic technical information current; production and distribution costs for paper media make electronic methods a necessity.

This service is MIT's official electronic address, but there is another site operated by students. The student server, at http://www.mit.edu, is operated by the Student Information Processing Board. The official and student-run sites cohabit peacefully and are considered complementary.

Peter Roden, CWIS senior project manager, explains that the traditional view of considering output formats early in an editorial process is outdated. Portions of content can now be assembled to fit any type of format: CD-ROM, paper or the Web. "Typically in paper media the author takes readers on a journey," Roden said. "In hypermedia, the readers take themselves on a journey. The author is there to entice them to stay."

Unlike its earlier TechInfo system, Roden said, this new service is a grass-roots effort. "MIT's publishing approach is a hybrid, which at first was very haphazard but was then balanced when a control or support method was put in place," Roden said.

The challenge was to combine an official presence that governs all postings with a perspective that empowers users as publishers. The problem, as MIT and other publishers are discovering, is massive information with minimal organization. MIT tries to hold onto an 4-1 ratio when adding resources; most efforts focus on content while the remainder concentrate on delivery issues. CWIS actively encourages content, since there is already a lot of delivery support.

Down-home page

The server's deceptively simple home page is a gateway to a wealth of resources, with a top set of pages providing various views. "There's more content on here than any one person can know about, and there's as many ways to look at it as there are people looking," Roden said. The server has definitely found a willing audience; CWIS estimates that there are 20,000 unique accesses (defined as an access by a unique computer, as opposed to multiple accesses by the same computer) each week.

Such growth requires expandability as well as judicious upgrading of the system's hardware and software. Tom Coppeto, systems programmer at the MIT Network Group, notes that physical disk space, along with the actual number of gateways to access various Web servers, will need to increase as traffic increases, and reliability is a critical issue. New resources will likely be needed to keep pace with emerging transport protocols and document formats; information will need to be handled in a format-independent fashion to accommodate the exponential growth of this network. Hardware improvements will also be necessary to augment the Digital 5000. Although one-third of the computers at MIT are Macs, for the most part they are currently used as clients, with the exception of a Mac II providing server functions for the Microcomputer Help Desk.

Web publishing is a formidable strategic tool for an information-dense organization such as MIT. MIT's evolutionary experience in this field is not uncommon. Roden said, "MIT may be a little ahead of most, but we're certainly not alone." □

Netscape: WWW.MIT.EDU Home Page
Back
Forward
Home
Reload
Images
Open
Print
Find
Stop
Location: http://www.mit.edu:8001/
What's New?
What's Cool?
Handbook
Net Search
Net Directory
Newsgroups
MIT SIPB
World Wide Web Server
Welcome to the Student Information Processing Board World Wide Web server.
New to the World Wide Web? Maybe you don't know Mosaic from HTTPD? Check out The World Wide Web for the Clueless, a quick, non-jargon intro to WWW and our server. (These are hypertext links; just click on them to follow them.)
We welcome any and all feedback you'd like to make, via our (optionally anonymous) comment gateway.
MIT has an official MIT web server with all sorts of information about MIT, such as how to apply and how to get PGP.
What's New?
New and interesting things that are happening to the SIPB WWW server.

The students' home page, MIT SIPB, is a gateway to such student-posted attractions as a "Hack Gallery," which spotlights noteworthy student pranks, and an interactive aerial photograph of the campus.

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Your Power Mac.™
You are in
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Your mind
Is racing.
Your fingers
Are racing
To keep up
With your thoughts.

YOU WRITE

You begin
A new
Sentence with
A lowercase letter.
This mistake
Is corrected
Automatically.

YOU REVISE

Knowing there are
100 levels
Of Undo.
And 100 levels
Of Redo.
Just in case.

YOU WRITE

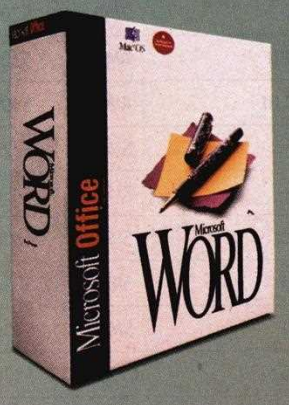
You begin a new
Sentence with
An abbreviation
You created.
It becomes
An entire phrase.
Automatically.

YOU REVISE

In
Print preview
You change
Margins
Words
Typefaces.

YOU WRITE

Until you have finished.
You click AutoFormat.
And the block of words
Can become
A letter.
A proposal.
A story.
Automatically.
You write. Because you can.



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— Software Publishers Association

Big sites sold on Apple

Kinko's buys into latest LaserWriter

By Greg Garry

At last week's PC Expo in New York, Apple and photocopier powerhouse Kinko's Inc. announced an alliance that delivered fresh evidence of the computer maker's move to stem the tide of Windows and Intel-standard PC dominance in the business market.

As part of the strategic pact, Kinko's purchased 785 new Apple Color LaserWriter 12/600 PS models, said Gene Miller, computer services product manager for the Ventura, Calif.-based chain. "The printer deal is a start, but there will be other products and services," Miller said.

One of the new printers will be at each of Kinko's 785 stores in the United States, according to Miller. The printers will connect to both Macs and Windows-based machines at each location.

Other large sites are also bucking the push for single-platform standardization.

"We are very entrenched in cross-platform technology," said Gary Kleinman, director of shared systems at Walt Disney Pictures and Television in Burbank, Calif.

Kleinman, whose film and entertainment IS department supports about 6,000 people, estimated that the hardware split in the film group is right down the middle, with 50 percent of the users on Macs and the other 50 percent on PCs running Windows.

Kleinman said the choice is driven mostly by job function. "In a studio where you have a combination of financial and creative people sharing information, the creative types have tended to gravitate toward the Macs while the hard-number crunchers want the Windows-based PCs," Kleinman said.

Lockheed Missiles & Space Co. Inc. in Sunnyvale, Calif., also has a mix of PCs and Macs, with Macs predominating, said Greg Chirichigno, computer resources specialist with the company's NASA and federal systems operation. He said there are about 6,000 Macs at the site.

Chirichigno said that the support for Windows machines can be three to four times more expensive than the easier-to-use Macs. "Basically, people are not that intuitive when it comes to computers," he said.

Joining the Mac team

- Kinko's Inc.
- Lockheed Missiles & Space Co. Inc.
- Northwest Airlines Inc.
- Walt Disney Pictures and Television

Northwest Airlines Inc. in Minneapolis has a Mac-to-PC split similar to Lockheed's, according to Bryan Bourn, an IS specialist for the company. The systems operation control center, which contains about 300 desktops, is all Mac, he said.

The decision to go with an all-Mac environment at the control center was driven by a number of factors, including ease of use, price and connectivity to the company's Unix mainframes, Bourn said. Despite Apple's reputation for high prices and the Mac's limited communications capabilities between platforms, Macs were able to meet Northwest's needs. □

Used Macintosh prices

MODEL	CONFIG.	PRICE	MODEL	CONFIG.	PRICE	MODEL	CONFIG.	PRICE
SE	1/20	$250	Centris 650	4/80	$1,200	PowerBook 140	4/40	$650
SE/30	5/40	$500	Centris 660AV	8/230	$1,100	PowerBook 145	4/40	$700
Classic	2/40	$350	Quadra 605	4/80	$500	PowerBook 145B	4/80	$700
Classic II	4/40	$425	Quadra 610	8/160	$750	PowerBook 160	4/80	$1,050
LC	2/40	$200	Quadra 650	8/230	$1,850	PowerBook 165	4/80	$1,125
LC II	4/40	$300	Quadra 660AV	8/230	$1,100	PowerBook 165c	4/80	$1,250
LC III	4/80	$400	Quadra 700	8/230	$1,200	PowerBook 170	4/40	$1,075
II	5/40	$225	Quadra 800	8/230	$1,850	PowerBook 180	4/80	$1,500
IIx	5/40	$450	Quadra 840AV	8/230	$2,400	PowerBook 180c	4/80	$1,750
IIcx	5/40	$400	Quadra 900	8/230	$1,600	PowerBook 540c	4/320	$3,200
IIci	5/80	$650	Quadra 950	8/230	$2,200	PowerBook Duo 210	4/80	$650
IIsi	5/40	$400	Power Mac 6100/60	8/250	$1,125	PowerBook Duo 230	4/120	$800
IIfx	8/160	$800	Power Mac 7100/66	8/250	$1,850	PowerBook Duo 250	4/200	$1,375
IIvx	4/80	$750	Power Mac 8100/80	8/250	$2,500	PowerBook Duo 270c	4/240	$1,875
Centris 610	4/80	$675	PowerBook 100	4/20	$450	PowerBook Duo 280	4/320	$2,900

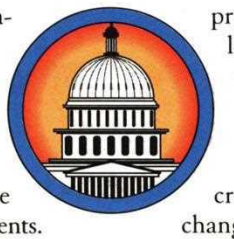
For more information, call (404) 612-1205 or (800) 755-3033; 24-hour fax info (404) 955-0569; http://www.uce.com/uce.html.

Tax credit for R&D to expire this week

By Steve Barlas

For the first time since it became part of the federal tax code in 1981, the R&D tax credit faces extinction. The credit, which expires June 30, is equal to 20 percent of "qualified research expenditures" on top of a base amount.

High-tech companies, including Apple, have taken advantage of the renewable credit and would like to see it become permanent. Jim Burger, Apple director of government affairs, and Dan Kostenbauder, tax counsel for Hewlett-Packard Co. of Palo Alto, Calif., are among the credit's proponents.



Although most computer executives view the credit favorably, some are less than enthusiastic. One CEO, who requested anonymity, said members of Congress have intentionally made the credit temporary for one reason — so they can demand campaign contributions from vendors in exchange for renewing the credit.

Personal computer companies that are following the tax-credit debate are taking different, sometimes contradictory, positions. HP's Kostenbauder said he wants to see a change in the time period of the credit. Currently, it is calculated by devising an R&D spending-to-sales ratio for the years 1984 to 1988. A company then computes its year-to-year increase over that base and takes a credit of 20 percent, subject to limitations.

Kostenbauder said a company such as HP, which has gone from selling pricey test equipment with high R&D costs in the 1980s to offering mass-market printers and PCs with lower development costs in the 1990s, is penalized by the current base formula.

But others want the credit to remain unchanged. "Many companies ... would probably suffer a reduced credit if [it] changed," said Bill Sample, director of financial services at Lotus Development Corp. of Cambridge, Mass.

The lack of consensus should make it easier for Congress to squelch the R&D tax credit, especially since the House Ways and Means and Senate Finance committees are under intense pressure to balance the federal budget by 2002. One goal is to chop $25 billion in annual federal revenue losses from business tax credits. The R&D tax credit costs about $2 billion a year. □

PaperPort propels Visioneer

By Don Monkerud

The adage "build a better mousetrap and the world will beat a path to your door" is proving particularly apt for Visioneer Inc.

The company's PaperPort, a small scanner with document-management software, is a big reason for Visioneer's success. If the current sales rate continues, 1 million units of the $400 device, which was introduced in January, will be sold by the end of the year. This would push Visioneer's 1995 sales to about $30 million.

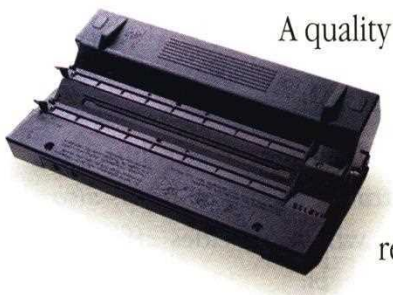
"The company is experiencing the most explosive growth I've ever seen," said Michael McConnell, the former SuperMac Technology Inc. CEO who now heads Visioneer.

Financial backers of the privately held Visioneer of Palo Alto, Calif., obviously agreed. In May they invested $12 million in the company. McConnell said a good chunk of the investment will go into R&D; the 83-person company has spent about $10 million in software and hardware development since it was founded in 1992.

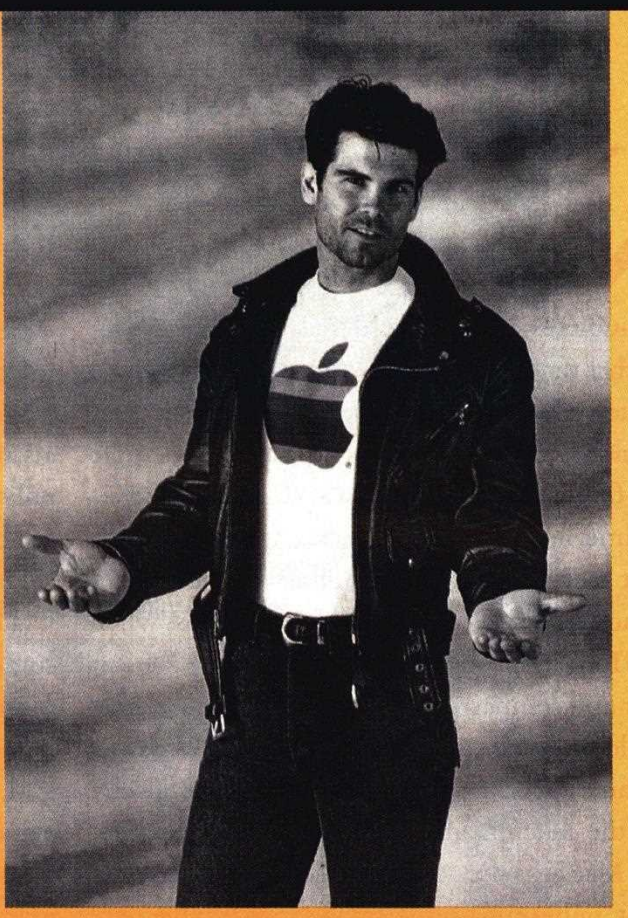
The only potential pitfall for Visioneer is that demand for the PaperPort is so high, the company has a month's worth of back orders. But that's a problem McConnell and the rest of his executive team said they can live with. □

Now you can save money and maintain your image.

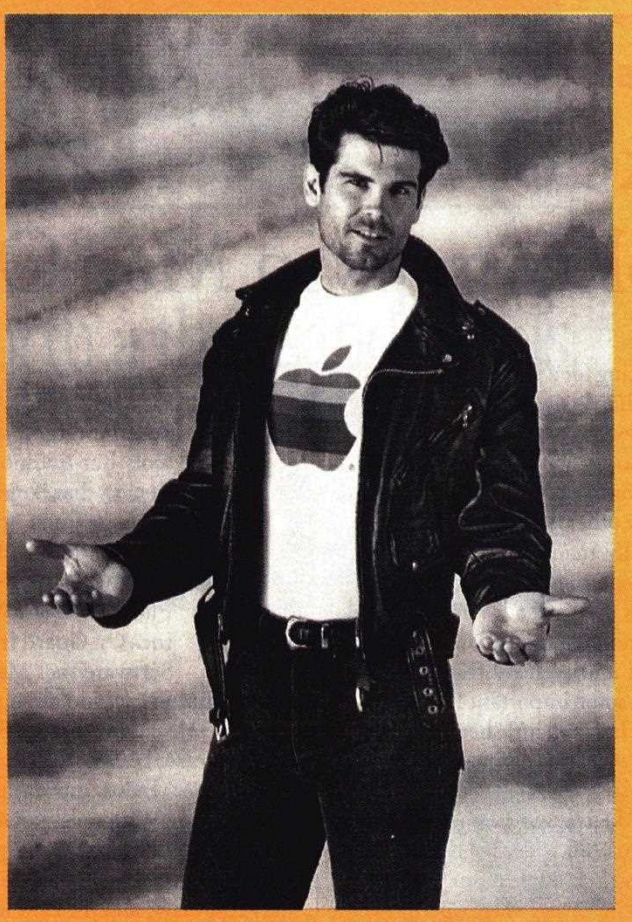
Apple® laser toner quality for $49.99*



A quality image has its price. And with an Apple remanufactured toner cartridge, the price has never been so affordable. That's because genuine Apple remanufactured cartridges give you the same print quality as Apple and HP factory originals.** So you can take your chances with a low-cost recycled cartridge, which may contain generic office copier toner and nonstandard replacement parts. Or you can rely on Apple-engineered quality.



New Apple cartridge



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Our fineparticle toner delivers crisp text, rich graphics, and like you can see in the photo, natural-looking shades of gray. Your image is priceless. And with an Apple remanufactured toner cartridge, the price of maintaining it has never been so low. To order in the U.S., call 1-800-635-3017.

Printer Compatibility

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Apple

Unretouched consecutive printed output from the same Apple LaserWriter® IIg printer.

*Price is available until July 15,1995 while supplies last on remanufactured laser toner cartridges purchased direct from Apple. Special $49.99 price includes a $5 mail-in rebate for your empty Apple cartridge. Price does not include shipping and applicable sales tax. Empty toner cartridges returned for rebate are postage-paid within the continental U.S. **For Printing heavy graphics in high humidity and temperatures, a new Apple LaserWriter ll EP-S Toner Cartridge (M6002) is recommended. For other quality original equipment printer accessories in the U.S., call for the name of the Apple authorized reseller nearest you: 1-800-538-9696 ext. 525. ©1995 Apple Computer, Inc. Apple, the Apple logo and LaserWriter are registered trademarks of Apple Computer, Inc. All other company names and logos are trademarks or registered trademarks of their respective owners.

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Editorial office: 301 Howard St., 15th Floor, San Francisco, Calif. 94105. Phone (415) 243-3500; fax (415) 243-3651; macweek@macweek.ziff.com.

Advertising office: 950 Tower Lane, Foster City, Calif. 94404. Phone (415) 378-5600; fax (415) 378-6903.

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BPA INTERNATIONAL

A promise kept

Nearly two years ago, Michael Spindler delivered the keynote speech at the 1993 Seybold San Francisco, making him the first Apple CEO since Steve Jobs to address that audience. Spindler told those publishing professionals that the company had lost its way, and Apple had forgotten which market made the Macintosh a success. He promised that as long as he was CEO, Apple would not forget that publishing was *the* key market.

At the time, analysts and the press expressed skepticism about such a commitment. Observers pointed to Apple's track record for short-term memory loss when it comes to follow-through.

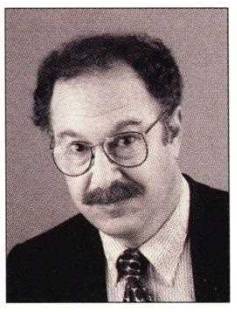
Spindler and company have kept their promise. Last week Apple unveiled its Power Mac 9500 tower — a RISC machine ideal for publishing, designed specifically to replace the Mac Quadra 950 workhorse. This first PCI-based Mac has what it takes to deliver the increased power that publishing professionals need. The only problem may come from Apple's inability to produce the unit in the volume the market is ready to absorb.

There's even more evidence of a renewed publishing focus. Last week Apple Vice President Don Strickland outlined programs he intends to roll out to extend Apple's dominance in the publishing market. These programs include system bundles that will benefit value-added resellers selling to publishing professionals and a new color monitor that needs to be calibrated only once. Apple's commitment to publishing is also reflected in ColorSync 2.0, which provides effective color management at the OS level.

This is excellent news for all Mac users. First, the company's success in desktop publishing should attract more resellers who want to exploit a growing and profitable market, further expanding Apple's share. Second, products that Apple targets at publishers inevitably benefit other key markets, such as multimedia and digital video. This is the kind of follow-through Mac users have been wanting from Apple management for years. Keep it coming. □

THE SECOND DECADE HENRY NORR

Take out the checkbook to plug gaps in Mac OS



If you're looking for a way to get a rise out of hard-core Mac enthusiasts, I've got two suggestions: One is to say or even imply something positive about Windows, and the other is to do likewise about IS managers. My most recent columns managed to do both by noting that Windows 95's remote configuration-management and security features address some important IS concerns to which Apple has paid little heed.

The response

I got what I asked for: a mailbox full of flaming nastygrams. Some denied the possibility that anything developed in Redmond, Wash., could be in any way superior to the Mac OS. Others accused me of aiding and abetting an IS-led counterrevolution that threatens the very spirit of personal computing in general and the Mac in particular.

My response to this crowd: If you care about the Mac, get your heads out of the sand.

More interesting were several messages acknowledging the need for remote-administration tools but questioning my suggestion that Apple has to fill it. They pointed to an array of third-party products that already do the job: among others, FileWave from Wave Research Inc., On Guard from Power On Software Inc., MacPrefect from Hi Resolution Inc. and the upcoming Saber LAN Workstation 2.0 from Saber Software Corp. (soon to be McAfee Associates Inc.).

Together these programs more than match what Windows 95 will offer, but I don't think they solve the problem. Precisely because they are not part of the OS; they cost extra; and they entail extra rounds of qualification, purchasing, installation and setup. In most cases they're not cross-platform, and they're not integrated with existing administrative mechanisms, notably AppleShare Admin or NetWare Directory Services access controls. There's no guarantee that these products will be compatible with each other or with future system software developments or even that the mostly small companies that produce them will be around in a few years.

Squaring the circle

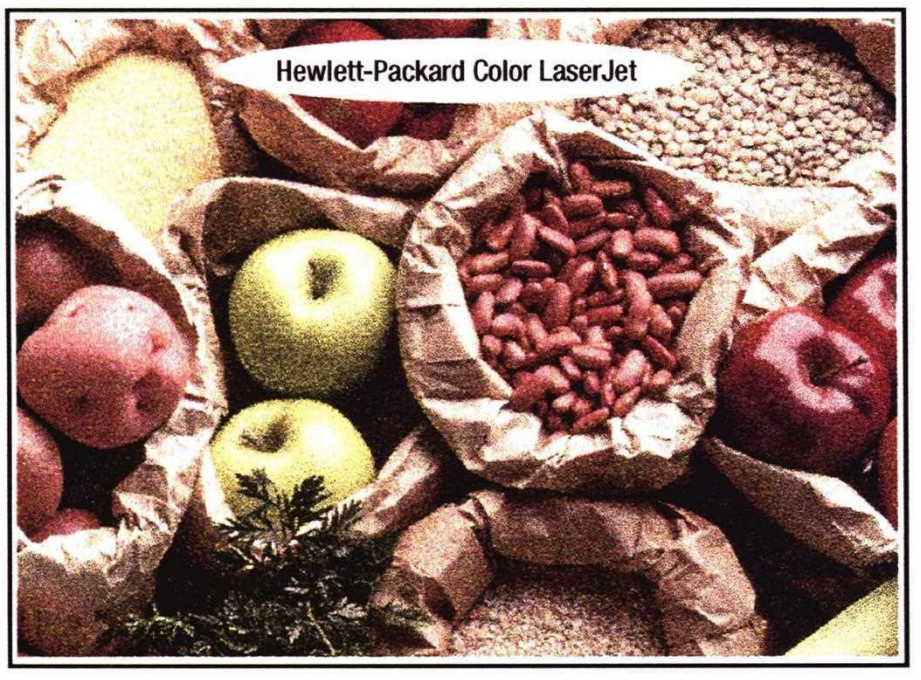
Is the only solution then for Apple to develop a new administrative architecture on its own? History suggests that would take years, cripple the third-party market in the meantime and in the end produce at best an incomplete solution. Instead, I have a three-part proposal:

- Apple should integrate At Ease for Workgroups into the base OS.
- It should break out the checkbook and license or purchase additional administrative tools from third-party developers.
- It should build strong support for industry standards, such as SNMP (Simple Network Management Protocol) and the emerging Desktop Management Interface, into every aspect of the Mac OS.

That way, the company can continue to provide basic administrative and security features and yet make it easy for other developers — large and small, Mac-specific and cross-platform — to deliver more-sophisticated and specialized tools. □

Henry Norr, editor emeritus of MacWEEK, welcomes feedback in the MacWEEK forums on CompuServe or eWorld or at hnorr@ftp.macweek.ziff.com.

Peel off



A picture is worth a thousand words. But for some reason, Hewlett-Packard is speechless.

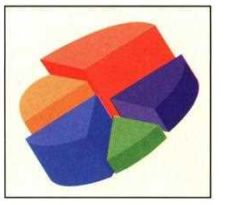
In this case, a picture seems to be worth slightly more than a thousand words. Because after seeing the difference between our color laser printer and Hewlett-Packard's, we just couldn't keep quiet.

Introducing the Apple Color LaserWriter 12/600 PS

Apple

The Apple Color LaserWriter 12/600 PS

Even though our demonstration speaks volumes, we thought you might like to hear a few more words about the first Apple® Color LaserWriter®—the Color LaserWriter 12/600 PS.



As you can see from the comparison, it gives you nothing less than the highest color print quality possible. Incorporating an Apple breakthrough called Color PhotoGrade, the Color LaserWriter 12/600 PS delivers near-photographic quality that can make virtually everything you print more expressive.

COLOR WITHOUT COMPROMISE.
COLOR WITHOUT COMPROMISE.
COLOR WITHOUT COMPROMISE.
COLOR WITHOUT COMPROMISE.
COLOR WITHOUT COMPROMISE.

You'll find this even extends to black printing. True 600 dpi resolution means that sharp, black text always comes out as sharp, black text. So your PostScript™ and TrueType® fonts, as well as your line art, have never had more impact.

It also provides you with something no other printer in the world can: the renowned plug-and-play simplicity that can only come from Apple. Just hit Print. With ColorSync® 2.0, our seamless color-matching technology, the color you see on your monitor is the color you see on your paper. Changing the toner cartridges is almost as simple. Which means you can actually do it yourself without having to call tech support. And with PostScript and built-in Ethernet, you can easily print work over any Novell, AppleTalk® or TCP/IP network—whether you use UNIX®, a PC running Windows or a Macintosh® personal computer.

ColorSync® 2.0

Think of it as color without compromise. That's how we like to refer to it.

If you'd like to hear even more words about the new Apple Color LaserWriter 12/600 PS (words like "surprisingly affordable," just to name a few), call 1-800-538-9696, ext. 525, for the authorized Apple reseller near you. Or, if it's more convenient, look for us on the Internet at http://www.apple.com.

Then again, maybe we don't need to say anything else about it. One print could actually tell you everything you want to know.

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Apple®

The Apple output shown was printed on the Color LaserWriter 12/600 PS with all printer settings set to default. The Hewlett-Packard output shown was printed on the HP Color LaserJet with the PostScript upgrade and with all printer settings set to default except the halftone setting set to scatter dither (enhanced) mode. ©1995 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, AppleTalk, ColorSync, LaserWriter, Macintosh and TrueType are registered trademarks of Apple Computer, Inc. Mac and the Mac OS logo are trademarks of Apple Computer, Inc. PostScript is a trademark of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions. UNIX is a registered trademark of Novell, Incorporated, in the United States and other countries, licensed exclusively through X/Open Company, Ltd. All Apple products are designed to be accessible to individuals with disability. To learn more (U.S. only), call 800-776-2333 or TDD 800-833-6223.

LETTERS

Power is powering up

Power Computing Corp. didn't license Apple's forecasting model, but for a lot of our earliest customers, it has been hard to tell (MacWEEK, June 12, Page 27). We apologize.

Here at Power, we've attempted to let everyone know that demand for our first Macintosh OS compatibles would initially outstrip our early production capability. We've tried to be very clear that we will be increasing our volume production through late August. We are currently on schedule to meet that goal.

In the interim, Power systems are shipping in exponentially increasing quantities on a daily basis. Excluding minor exceptions, we are now shipping ordered systems within a two-week (or less) time frame. To Dr. Clayton and all prospective Power Computing customers, thanks for your continued patience and overwhelmingly positive response.

Glenn Pieper
Customer service
Power Computing Corp.
Milpitas, Calif.

Printers for graphic artists

We read with great interest the Color LaserWriter piece (MacWEEK, June 12, Page 1) only to be disappointed (again) that none of the new offerings described include 11-by-17-inch format.

Why isn't anyone doing 11-by-17? Are we suffering from Canon's domination of the market?

We are especially perplexed that your piece quotes pundits saying that it is good for Apple to keep the focus on the graphics market. Who but graphic artists need 11-by-17? The only choice for small-run color fliers is $70,000 copier/RIP combos that are too expensive and technologically risky to commit to for the term of a five-year lease. Faced with the alternative, I'd gladly pay $10,000 or more for two-sided 11-by-17 laser capability similar to the units discussed in your article.

G.S. Larsen-Giacalone
Computer services
Heartland Group
Seattle

Loyalty not rewarded

I've gotta blow off some steam at Apple's latest blunder — discontinuing Power Mac motherboard upgrades.

I work in a committed Mac shop. We love Apple's long-standing tradition of offering upgrades, whether for the original Macintosh or a late-model Quadra.

One of our strong arguments for buying Quadras was the promised upgrade path to the Power Mac. Now that we have begun the process, this path has been closed. A detour to a third-party card doesn't interest us; reviews consistently show a motherboard upgrade provides the most bang for the buck.

Another argument against third-party cards is AppleCare. We spend several thousand dollars for AppleCare each year; it does not cover third-party hardware.

We have been loyal Mac users for years and would find it prohibitive and counterproductive to change operating systems. We would prefer not to consider Mac clones, but if they offer the kind of upgrade path Apple once did, they could merit serious consideration.

Daniel Knight
Information systems manager
Baker Book House Co.
Ada, Miss.

Chicken, egg; Mac, software

I agree with Andrew Gore's Insider article (MacWEEK, June 12, Page 3). As a consultant and computer user for more than 15 years, I have seen many changes. I had a retail software store from 1984 to 1990 and Mac software was 25 percent of our business. This just goes to show you that if it is accessible, a retail store can do well selling Mac software.

One point is that virtually every Windows user I have ever met has said that they won't use DOS applications, only Windows programs. When you look at the software market with that perspective, not only does the Mac have a lot of software, it has more than Windows.

Add to that the fact that Mac applications work together better and do not require mandatory updates when the OS is modified, and the result is a significant software market.

However, Mac software availability is limited. I, as a consultant, often provide the software for my customers because they don't want to spend the time tracking down the software. Do computers sell software or does software sell the computer?

George L. Wagner Jr.
Computers, Support, & Consulting
Sylvania, Ohio

How to contact MacWEEK

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105; fax (415) 243-3651. We can be contacted on-line: CompuServe, 76077,1351; eworld, MacWEEK; MCI, 323-1203; Internet, letters@macweek.ziff.com. Include your name, address and phone number. We reserve the right to edit for clarity and length.

THE MAC MANAGER DON CRABB

Macintosh will be going Guy's way once again

People either hate Guy Kawasaki or love him. I'm a Guy lover.

Even though he once was a jewelry salesdude, who I always picture as a spiffed-up version of Herb Tarlek from "WKRP in Cincinnati." Even though my elbows still hurt from his arm-twisting when he was Apple's chief software evangelist. Even though I once rated 4th Dimension 1.0 as "slower than a pig in slop" in 1987, when Guy was president of ACI US Inc. And even though he once waxed eloquently about Acura's customer service after an Acura dealer ripped me off for a grand on a car deposit. See, Guy Kawasaki is smart, and I respect smart above all else.

Thank God the new Apple has the same respect. It has reportedly tapped Guy the K. to be an Apple Fellow. As such, he'll recharge a disjointed and moribund Apple evangelism effort and likely give David Nagel, Dan Eilers and Michael Spindler a piece of his perceptive mind about Apple, OpenDoc, Copland and the future.

It couldn't happen at a better time. In fact, this is the time it had to happen:

Just as Apple is getting its best managers into the right positions. Just as it is cloning the Mac OS and has a second generation of PowerBooks and Power Macs coming out. Just as Apple is trying hard to recapture its developers. And just as Apple is ready to set the standard for the future of computing.

Just as all this is happening, Apple decided to get us excited about the Mac again. And what better way than to hire the Guy who delineated The Macintosh Way?

Who needs evangelism?

Eight years ago, following his move from Apple to ACI US, Guy told MacWEEK: "I don't believe that Apple needs a person like me today. There was a time when people like me were necessary because I am fundamentally a gunslinger. It's different today. Apple has changed."

Boy, have things changed. Apple is heading into its own OK Corral (Bill Gates as Ike Clanton?) without a gunslinger.

Let's face it, Apple needs Guy in his best Wyatt Earp form. He understands the Microsoft Gang and knows how to hire the Doc Hollidays of the evangelism world to make the coming shootout favorable for Apple.

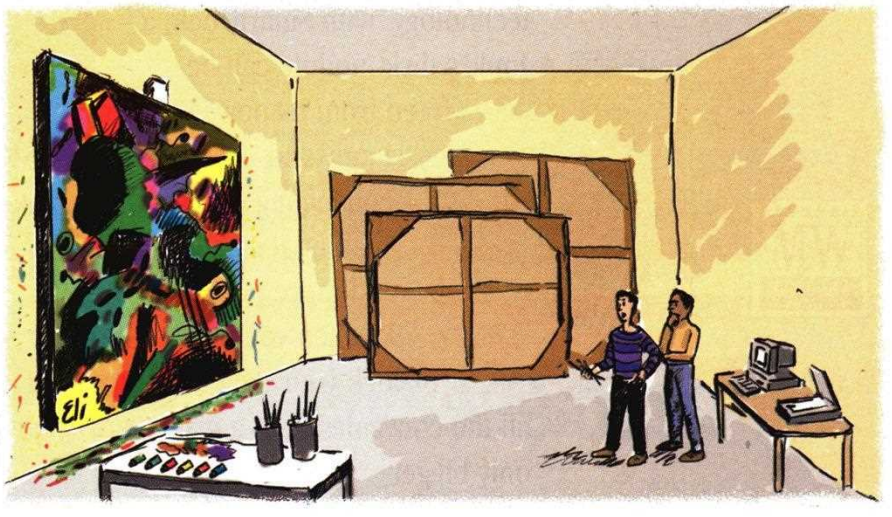
The first 100 days

But Guy needs to get that gun strapped on fast, keeping in mind Microsoft might escalate the battle to nuclear weapons at any time. When Ike Gates smells blood, he acts fast. So, Guy, get it going by:

- Culling the ranks of former successful Apple evangelists who have some real perspective on the company.
- Building them into a unified evangelism organization that cuts across marketing and technology lines, reporting to both Dan and Dave through you.
- Expanding the concept of evangelism so that its effect won't be transitory.
- Spending your initial efforts on Copland and OpenDoc.
- Getting yourself on all the talk shows.
- Making commercials explaining why you've come back to Apple and why all of us should, too.

Then maybe you can get my grand back from that Acura dealer. □

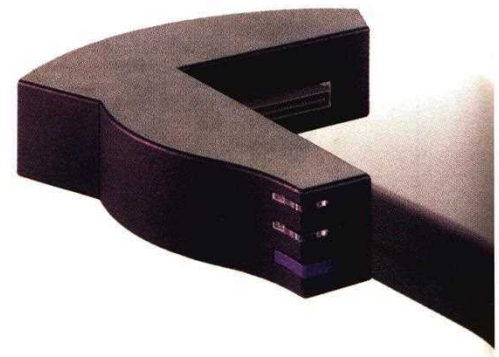
Don Crabb welcomes comments at his Internet address decc@cs.uchicago.edu. You can also check out his home page at http://cs-www.uchicago.edu/~decc/.



"I scanned in a squashed bug. Then on the computer I twirled it, rotated it, cloned it, added noise, twisted it, inverted the colors, projected it up on the canvas, then painted it. It's titled 'Guts.'"

Comments? Ideas? Contact Eli at elitoons@aol.com

Now Save Big On A Gig: $389 Internal Drive



Joule 1GB Drives Give You Full-strength Storage for Just $489… Portability, Security and Cordless Stackability We Throw In Free.

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So when you need to move or share or lock your data away, now you can with all the convenience of a diskette or a cartridge, only bigger… 1 gigabyte bigger!

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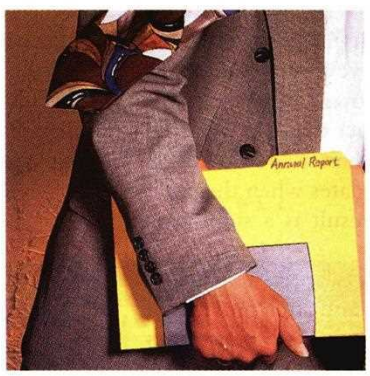

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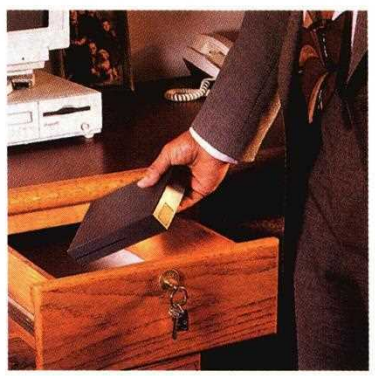

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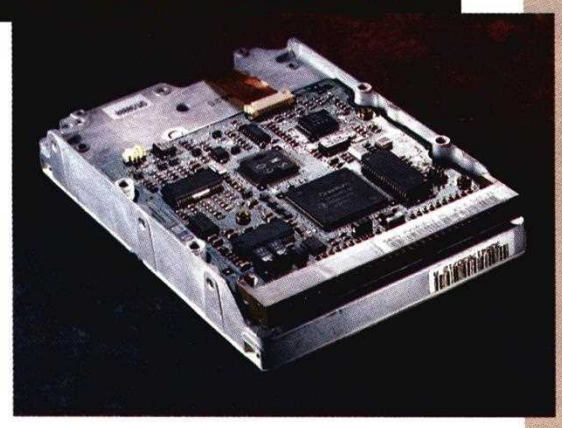

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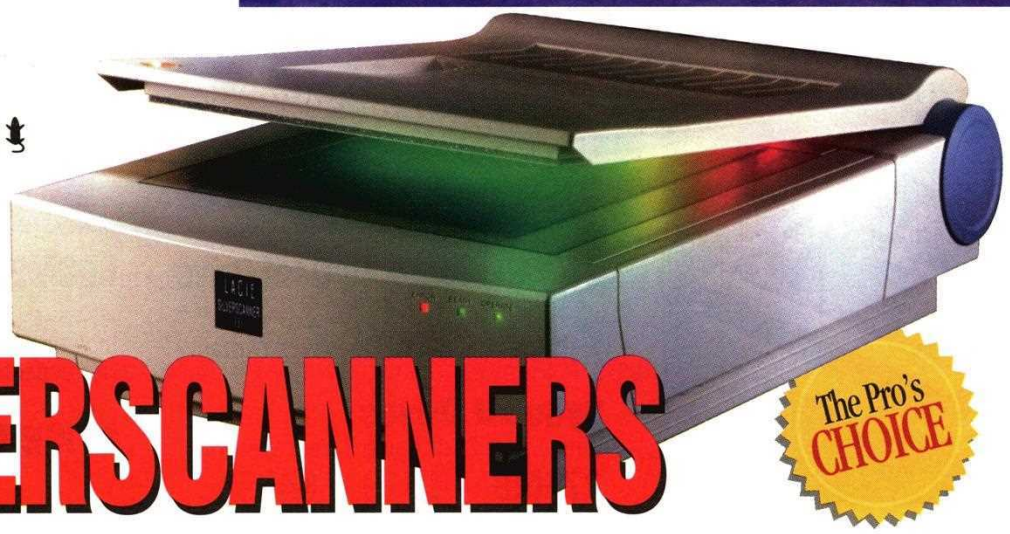

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COMPARISON

CD-ROM drives racing for speed

By Dale Coleman

We compare the MultiSpin 6X, hammerCD 6x Reader and AppleCD 600e Quad-Speed.

If you want to keep up with CD-ROM reader technology, don't blink. Just when it seemed safe to purchase a quadruple-speed CD-ROM reader, two longtime players in the drive market, NEC Technologies Inc. and FWB Inc., have gone to the next level again with new sextuple-speed CD-ROM readers. Apple, meanwhile, has raised the bar for its CD-ROM technology by replacing its double-speed CD-ROM players with new quadruple-speed models.

FWB's $799 hammerCD 6x Reader replaces the hammerCD 4x, while NEC's $599 MultiSpin 6X replaces the MultiSpin 4X. The $349 AppleCD 600e Quad-Speed replaces the double-speed 300e Plus (the "600" in the name stems from its near 600-Kbyte-per-second transfer rate). Both the FWB and NEC drives are available in internal configurations, while an internal version of the Apple drive, the Apple 600i Quad-Speed, will be built into new Macs and Power Macs due this summer. For our review we looked at external versions of all three readers.

ED CALDWELL

FWB's hammerCD 6x and NEC's MultiSpin 6X CD-ROM readers are among the first of a new breed of sextuple-speed drives. The AppleCD 600e is Apple's first quadruple-speed drive. An internal version of the Apple drive will be built into the new Macs to be released this summer.

Fast CD-ROM readers are a critical ingredient in the multimedia mix, but deciding when to buy into a new round of faster drives can be difficult. The improved specification for quadruple- and now sextuple-speed drives is appealing but only if it results in an increase in real-world performance that justifies the higher price.

Multimedia titles that take advantage of quadruple-speed technology have become available only recently, a phenomenon that parallels the general acceptance of quadruple-speed drives themselves. Most current CD-ROM developers assume that their titles will be used on double-speed drives, although some are now developing titles specifically for quadruple-speed drives.

In keeping with its generally conservative approach to all storage technology, Apple is betting that most users will find that quadruple-speed drives reflect the proper balance between cost and performance. Sextuple-speed drives, meanwhile, are being targeted at those who use CD-ROMs for intensive tasks, such as search-

See CD-ROM, next page

score card

Fast CD-ROM drives

CD-ROM readers continue to get faster and faster. While Apple has upped its drive to the soon-to-be-standard quadruple speed, two major drive vendors have taken the next leap with sextuple-speed readers.

- **AppleCD 600e Quad-Speed** from Apple has an impressive feature set and an aggressive price, making it one of the most attractive quadruple-speed readers available. The driver software covers only the basics, as does the audio CD support. But it's a hearty performer, easily faster than Apple's previous drive and not substantially slower than the more expensive sextuple-speed drives.

- **hammerCD 6x Reader** from FWB Inc. won our application-based tests by a narrow margin, thanks to its fast drive mechanism and excellent driver software. With its superior audio software, this is the best choice for multimedia uses, despite its confusing track-navigation buttons. You'll pay more for this drive, but if you want the best combination of features and performance, it may be worth it.

- **MultiSpin 6X** from NEC Technologies Inc. is a sextuple-speed version of the MultiSpin. Its front panel is loaded with nice, ergonomically designed features, such as a drive door you can open with one hand, but the rear panel employs a curious mix of outdated standards for setting termination and ahead-of-the-times conventions for the SCSI port. Its performance is very close to the FWB drive, and the price is lower.

	AppleCD 600e	hammerCD 6x	MultiSpin 6X
Overall value	◆◆◆◆	◆◆◆◆	◆◆◆◆
List price	$349	$799	$599
Performance	◆◆◆◆	◆◆◆◆◆	◆◆◆◆
Features	◆◆◆	◆◆◆◆◆	◆◆◆◆
Configuration	◆◆◆◆◆	◆◆◆◆	◆◆◆
Compatibility	◆◆◆◆◆	◆◆◆◆◆	◆◆◆◆
Documentation/support	◆◆◆	◆◆◆◆	◆◆◆◆

Key ◆◆◆◆◆ *Excellent* ◆◆◆◆ *Very good* ◆◆◆ *Good* ◆◆ *Fair* ◆ *Unsatisfactory*

IN BRIEF

KPT Vector Effects

HSC plug-ins enhance FreeHand, Illustrator art

Overall value ◆◆◆◆

With the success of HSC Software Corp.'s Kai's Power Tools, a collection of plug-ins for pixel-based painting and retouching applications, it seemed inevitable that the company would one day release a set of plug-ins for Mac drawing applications such as Adobe Illustrator and Macromedia FreeHand. That day has arrived with KPT Vector Effects, a $199 filter set.

Although many third parties have released plug-ins for these vector-based applications, KPT Vector Effects includes several unique features and a more robust interface than competitors such as Infinite Inc.'s Infinite FX or Letraset USA's Letraset Envelopes Plug-In.

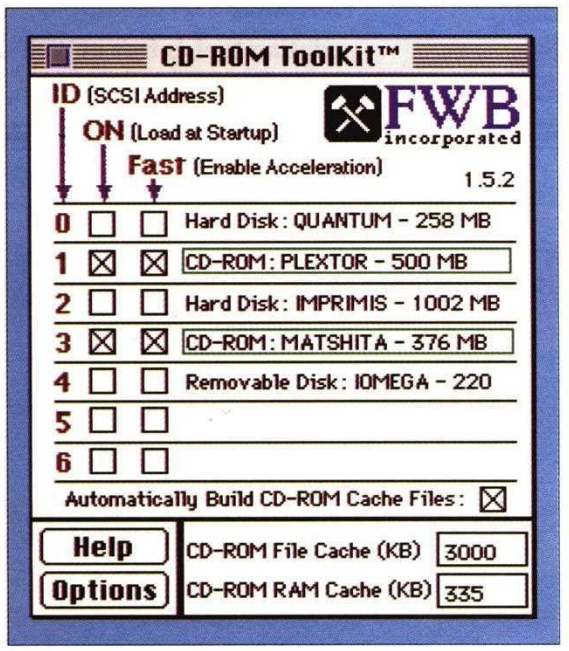
Vector Effects requires FreeHand 5.0 or later or Illustrator 5.5 or later. Most of the filters will work on any 68030 or higher Mac, although a few filters require a math coprocessor. HSC recommends a 68040 with an FPU (floating-point unit) or a Power Mac.

Smart effects

Installing Vector Effects is simple: The installer places the filters and support files in the Plug-ins folder of your illustration package. Vector Effects is smart enough to figure out if you're running Illustrator or FreeHand and automatically adjusts itself to the conventions of either application.

HSC interfaces often take a little getting used to, and Vector Effects is no exception. After you select a shape and choose the appropriate filter, your screen turns completely black (except for the menu bar) and a large colorful dialog appears. The idea behind the "background," as HSC likes to

See KPT, Page 37



FWB's CD-ROM ToolKit is an excellent software driver package that ships with the hammerCD 6x CD-ROM drive. Most users will never need to change the default values of the CD-ROM ToolKit control panel other than perhaps to invoke the file cache, a feature not found with Apple's or NEC's driver.

CD-ROM

From previous page

ing databases or loading large graphics and video files. For these users, every ounce of extra performance is worth the added cost.

AppleCD 600e

Setting up the AppleCD 600e is quick and painless. Although it ships with only Mac OS drivers, its standard dual SCSI-2 50-pin connectors on the rear panel make the drive compatible with Intel-standard or Unix machines. Based on a Matsushita mechanism, the AppleCD 600e has a published streaming transfer rate of 684.4 Kbytes per second, an access time of 167.5 milliseconds and a 256-Kbyte cache.

Like its predecessor, the AppleCD 600e employs a motorized, caddyless tray loader and supports all popular CD formats, including audio CDs. The front panel sports a headphone jack with a volume control, an LED busy indicator and an eject button. The rear panel includes standard RCA jacks for hooking up audio speakers.

The software that accompanies the AppleCD 600e is similar to that which shipped with earlier drives. It is adequate but includes no hard disk or RAM caching options to improve performance. Regrettably, the AppleCD Audio Player still provides no method to change the system sound source. In short, the third-party CD-ROM utility market will be unaffected by this release.

NEC MultiSpin 6X

Setting up the NEC MultiSpin 6X is easy and intuitive, even though the included instructions are for Intel-standard machines only. The MultiSpin 6X uses a new NEC drive mechanism with a published 900-Kbytes-per-second data transfer rate and 145-millisecond access time. Like the AppleCD 600e, it has a 256-Kbyte RAM cache. The included driver software is an NEC drive-specific version of Casa Blanca Works Inc.'s DriveCD (see MacWEEK, June 13, 1994, Page 37).

NEC's MultiSpin drives are distinguished by superior ergonomic design, and the 6X, which is externally identical to the MultiSpin 4X it replaces, is no exception. The front panel includes useful, well-implemented features found on few other drives, including a rotating door that makes it possible to load a CD-ROM with one hand. The front panel also contains the power switch, so you don't have to reach around the unit every time you want to turn it on or off. The drive requires a disc caddy.

A backlit LCD that displays status information is useful only when playing audio discs. When you use it for CD-ROMs, "on" is the only word in its repertory. But when you use the MultiSpin as an audio player, it can display information such as playback speed, track number and in-use status.

Design excellence dips at the MultiSpin 6X's rear panel, however. Setting termination requires fumbling with an old-fashioned DIP switch and the dual SCSI ports use small, 68-pin, 16-bit SCSI-2 connectors rather than the standard eight-bit, 50-pin connectors. (An adapter is included to connect the drive to standard Apple SCSI.)

hammerCD 6x

FWB specializes in providing high-performance drives at a premium price, and the hammerCD 6x Reader, which incorporates the new Plextor PX63-CH drive mechanism and FWB's proprietary driver software, the CD-ROM ToolKit, fits this description. FWB advertises a sustained transfer rate of up to 900 Kbytes per second and a 145-millisecond access time, the same figures published by NEC for the MultiSpin 6X. The reader has a large 1,024-Kbyte cache.

Setting up the drive was a snap despite the fact that both the hardware manual (a generic hammer drive document) and the software manual weren't updated to include the new drive. FWB said it is working on new manuals.

Compared with the Apple and NEC units, the FWB reader appears almost Spartan, although it does cover the basics. The front panel has a power-on light, dual status indicator lights, volume control, headphone jack and revamped, but somewhat confusing dual-track navigation buttons. (These non-intuitive buttons are the only external change from the previous model.)

The rear panel houses dual 50-pin connectors, a push-button SCSI ID selector and RCA jacks. Like the MultiSpin 6X, the hammerCD 6x drive requires a disc caddy.

FWB's CD-ROM ToolKit 1.5.2, now Power Mac-native and optimized for SCSI Manager 4.3, lets you customize drive settings until you're satisfied you've squeezed the last drop of performance from the system. While most CD-ROM drivers offer only RAM cache, the FWB driver supports both a RAM and file cache. The default values of 325 Kbytes for the RAM cache and 3 Mbytes for the file cache are appropriate for most systems, although if you're blessed with an overabundance of RAM, you might see a small improvement by increasing the RAM cache allocation. The driver also supports mounting of the new CD-Plus and Active Audio format discs.

We were impressed with the hammerCD 6x drive's audio CD desk accessory. In addition to the standard transport controls, it allows you to quickly copy tracks from audio CDs and to play any AIFF (Audio Interchange File Format) file.

Performance

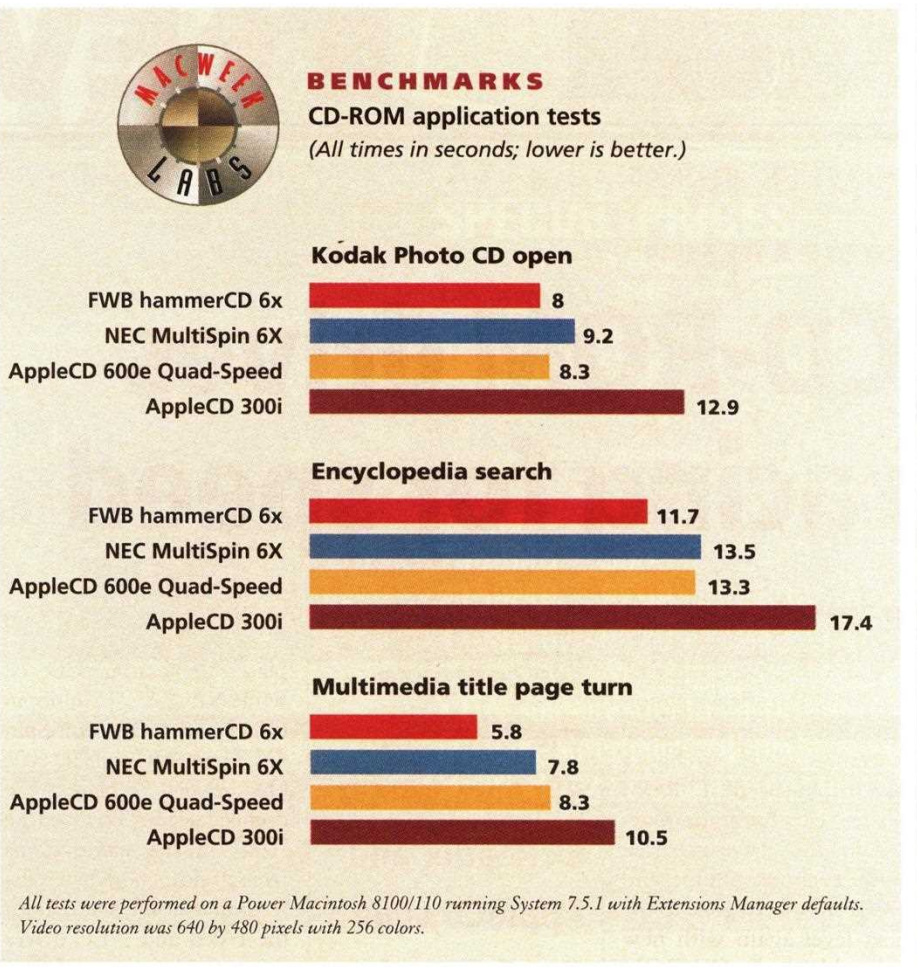
CD-ROM readers' 2x, 4x and 6x designations refer to data transfer rates only and offer just a hint of their real-world performance. Several other factors, including average access, random seek times, cache size and driver software buffer settings are major contributors to overall performance.

To test these three drives, we compared them to the Apple 300i double-speed CD-ROM drive built into the Power Mac 8100/110 using both the MacBench 2.0 CD-ROM Mix, which is a component-level test of a drive and its caching software, and application-based tests to consistently measure real-world throughput as well as seek and read performance (see benchmarks).

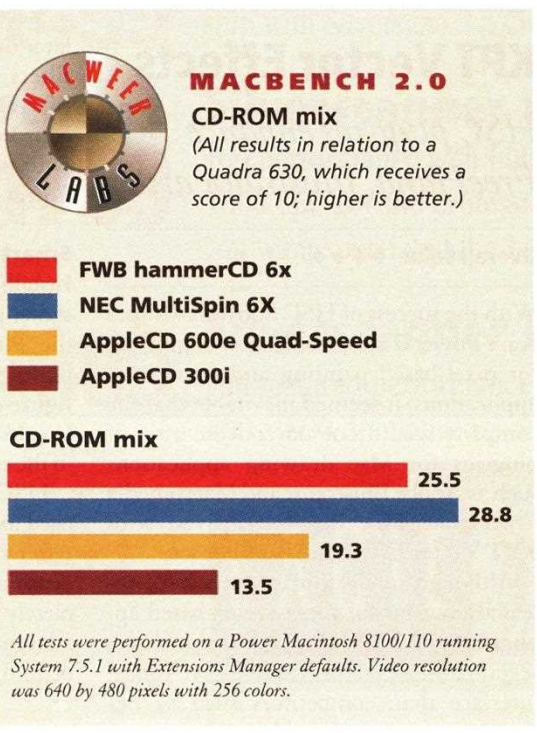
Among the application tests, we opened a large Photo CD file with Adobe Photoshop 3.0, installed the Mac OS from the distribution CD-ROM, performed a word search in a multimedia encyclopedia and turned a page in an interactive book title. Although no set of tests will exactly parallel your actual usage, our test suite did show that each of the new drives offers significant performance advantages.

The AppleCD 600e is the bargain of the lot for the average user, performing much faster than its double-speed predecessor in all our tests. The two sextuple-speed drives performed significantly faster than the Apple drives on the MacBench CD-ROM Mix test but registered only incremental improvements on the application tests. However, such incremental improvements can make a lot of difference to those

See CD-ROM, next page



All tests were performed on a Power Macintosh 8100/110 running System 7.5.1 with Extensions Manager defaults. Video resolution was 640 by 480 pixels with 256 colors.



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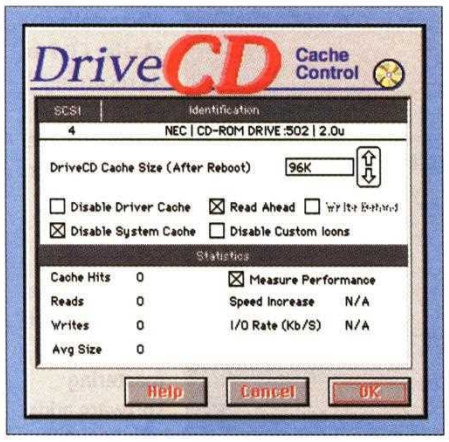


The NEC MultiSpin 6X ships with its own driver-specific version of Casa Blanca Works' DriveCD utility. This utility, which is adequate for most users, lets you easily adjust features such as the RAM cache.

CD-ROM

From previous page

who must constantly perform demanding, time-intensive tasks with CD-ROMs.

Between the two sextuple-speed drives, the FWB hammerCD 6x was a close second to the NEC MultiSpin 6X in the MacBench CD-ROM Mix test but consistently scored higher in the application-specific tests. Overall, the FWB drive proved to be the fastest CD-ROM reader we've used to date.

Conclusions

All three of these CD-ROM readers are attractive in their own right, offering clear performance advantages over the units they replace, especially for multimedia applications. More and more titles are shipping that are designed with quadruple-speed drives as the target, making the purchase of a double-speed drive somewhat shortsighted, notwithstanding prices near $100.

There are plenty of quadruple-speed drives from which to choose, but few offer the features and performance of the AppleCD 600e Quad-Speed, at a price no greater than the double-speed drive it replaces. Our biggest complaint is that the driver software that accompanies the reader continues to be of limited value.

If you're an active CD-ROM user and are already hitting the performance wall with quadruple-speed drives, the incremental speed boost of the sextuple-speed drives may be worth the extra cost. Although both the FWB hammerCD 6x and the NEC MultiSpin 6X readers are very good, the FWB drive performed consistently better in our real-world application tests. Its driver and audio CD software is also superior to that in the MultiSpin 6X.

But if your needs aren't urgent, you may want to wait before moving up to sextuple-speed readers. In addition to these two early arrivals, you can expect a second, less expensive wave of sextuple-speed drives to arrive soon from all the major vendors.

Apple is at (408) 862-3385 or (800) 462-7753; http://www.info.apple.com.

FWB Inc. of Menlo Park, Calif., is at (415) 325-4392; fax (415) 833-4653.

NEC Technologies Inc. of Wood Dale, Ill., can be reached at (708) 860-9500 or (800) 632-4636; fax back (708) 238-7800 or (800) 366-0476. □

KPT

From Page 35

call it, is that it reduces screen clutter. Fortunately, this option can be turned off for those who would like to see the rest of their working environment. The program's excellent on-line help and solid manual will also keep you on track.

All Vector Effects filters also include an option to display the objects that are not selected in the preview window. This is a great idea that makes it much easier to choose settings for your filters.

In addition to a large preview window, each filter contains Zoom and Pan controls as well as an Option menu for making selections specific to each filter. Finally, each filter contains a number of sliders for setting parameters, either interactively or numerically, and controls for saving and loading your settings.

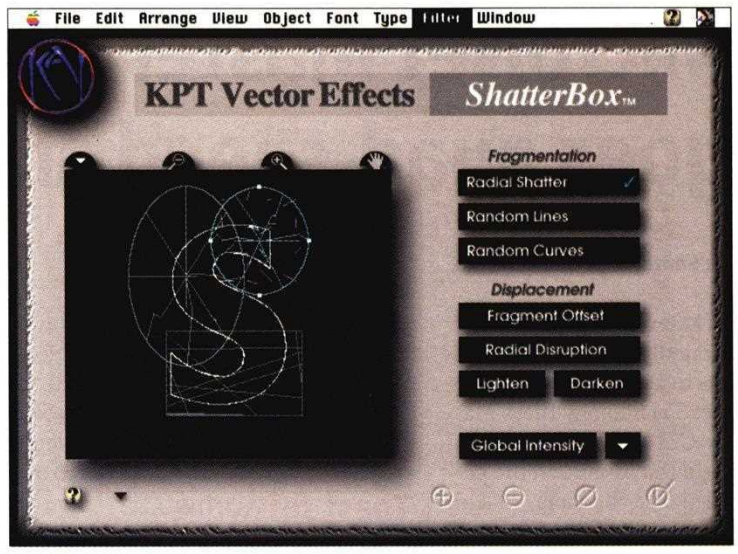
Vector Effects comes with 13 filters, all of which are built around a powerful core technology that performs sophisticated manipulations while adding as few control points as possible (in some cases none). This "point economy" produces results without significantly changing the size of your file.

Filter feeding

Although there is no main or central filter, there are some plug-ins you will definitely use more than others. 3D Transform is likely to be an oft-used tool. After selecting an object, this filter lets you rotate the object in 3-D space, extrude the object (with or without bevels), change the light source and light color, and apply a metallic shading to the surfaces of your 3-D shape.

The 3D Transform filter produces beautiful results with startling speed. Users who have previously created these types of effects with Adobe Dimensions will be pleased to have this power within Illustrator or FreeHand. However, this filter is not a substitute for Dimensions' capability to wrap illustrations around shapes and to move shapes about in true 3-D space (see MacWEEK, Aug. 15, 1994, Page 26).

The ColorTweak filter gives you interactive control for adjusting the color of selected objects in real time. Although you will still use your drawing application's controls for assigning colors, ColorTweak lets you adjust those colors by providing control over brightness and contrast, color saturation, and tint. All colors in Vector Effects are manipulated in a CMYK color space, just as in the host applications. Both Illustrator and FreeHand users will find ColorTweak helpful, but Illustrator users in particular will benefit because Illustrator's color tools are weaker than FreeHand's.

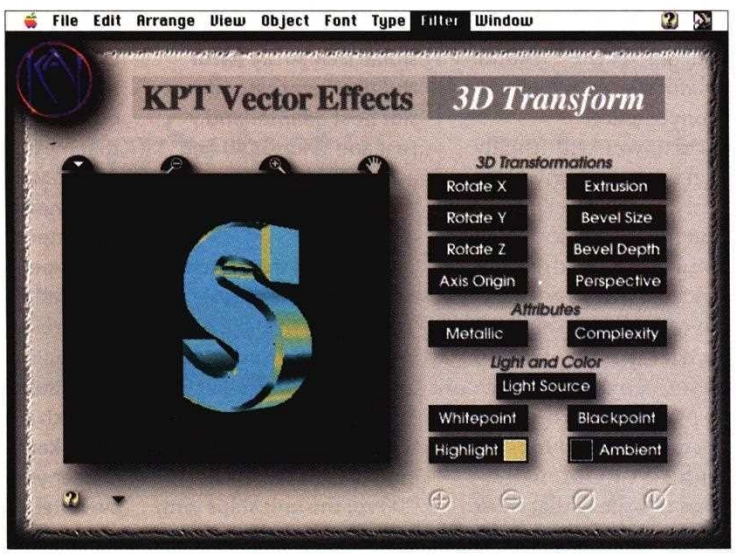


The ShatterBox effect in HSC's KPT Vector Effects can be used to break an Illustrator or FreeHand object into pieces. You control shattering by defining impact points, each of which can have separate parameters.

The ShatterBox filter allows you to select objects and shatter them in any number of ways. To use this filter, you define points of impact and then select a type of shattering effect. You can make an object look as if it has been hit in a particular location, dropped so that it is broken into pieces, or broken into chunks and spread about. You can specify the number of pieces, how smooth or jagged the pieces appear, and how far the pieces are moved after shattering.

Several filters allow you to create custom distortions of your objects. Warp Frame lets you create envelope distortions (similar to the Letraset Envelopes Plug-In). A bounding box is placed around your object, along with Bezier handles that allow you to distort the shape of the box. As you reshape the box by dragging on one or more handles, the object is stretched in a similar fashion.

Vector Distort lets you apply several preset distortions to an object. The Swirl, Spherize, Rotate, Magnify and Zig Zag options all stretch your objects into new, distorted shapes. Rather than add new points to create these distortions, Vector Distort alters existing curves. Be-



KPT Vector Effects employs a similar interface for all filters, providing powerful previewing and easy editing of filter parameters. Here, the 3D Transform filter is used to extrude, light and give metal shading to a shape.

Infinite's Infinite FX offers similar distortions but lacks Vector Effects' intuitive, interactive interface (see MacWEEK, March 20, Page 37).

The Flare filter creates star-burst flare effects, similar to a lens flare. With control over the halo, the radius and the center of the flare, you can easily create subtle, flared highlight effects.

For creating drop shadows, the ShadowLand filter produces soft shadows, shadows with a glowing halo and zooming shadow effects in which an object appears to rotate toward the viewer.

The Sketch filter produces a believable hand-drawn look by automatically drawing roughened copies of an object's stroke over an existing object. For further stylizing, the Emboss filter creates hard or soft embossed effects, while the Neon filter turns strokes into gradated color tints with the appearance of neon tubes.

Finally, there are several filters that provide handy utility functions for managing and manipulating objects. Inset Path offers a simple method of increasing or decreasing the size of an object's path, while the Resize & Reposition filter gives you an easy way to numerically alter an object's size and location. The Point Editor plug-in lets you move, edit and align points and Bezier handles.

Conclusions

With a lean but powerful interface and a strong feature set, KPT Vector Effects is easy to use but doesn't compromise in power. Experienced illustrators will find many tools that will enhance their work, while new users will discover a package that lets them create stunning images with little effort. Our one complaint is that Vector Effects doesn't feel as complete as Kai's Power Tools, which offers substantially more filters. In particular, we would like to see more utility plug-ins along the lines of the Inset Paths and Point Editor filters, given that both FreeHand and Illustrator have many interface shortcomings. Nevertheless, KPT Vector Effects is an intriguing package that Illustrator and FreeHand users should not pass up.

HSC Software Corp. of Carpinteria, Calif., can be reached at (805) 566-6200; fax (805) 566-6385; hscsales@aol.com.

—By Ben Long

In Brief continues on Page 40

MicroNet Master CD Pro goes quad-speed ahead

By Sean Wagstaff

Recording unit's excellent performance, Toast software add up to a very good value.

CD-Recordable technology is rapidly becoming more attractive and reliable. MicroNet Technology Inc.'s Master CD Pro 2.5.2 represents the latest assault on the performance barriers to this technology. The Master CD Pro is the first quadruple-speed recording drive we have tested based on Yamaha's CD-R mechanism. The $4,495 drive is bundled with Astarte GmbH's Toast CD-ROM Pro software.

While MicroNet pushes the price barrier for this level of performance, it falls somewhere near the middle of the price range for recordable CD-ROM drives. As such, it is primarily targeted at publishers or sites that need to make regular archival backups. Most users who need to cut more than a few CDs per week will find that the drive, which saves you nearly 20 minutes in recording time per disc compared with double-speed drives, is worth the added expense.

Setting up

Like all of MicroNet's storage solutions, this one is housed in a heavy-duty metal case. Setting up the Master CD Pro was painless. We simply plugged in the SCSI cable and a terminator and set the SCSI ID using the push-button switch on the back of the drive. The front of the drive has an eject button; miniheadphone jack; volume control; and activity lights for disc access, read, write, and 2x and 4x recording speeds (the unit can record in single, double or quadruple speed). On the rear panel, dual SCSI connectors are supplemented by a pair of stereo output jacks.

The Master CD Pro uses standard disc caddies and ships with a single blank disc. MicroNet sells separately the $30 Pro-Certified High Quality CD-ROM recording media for use with the quadruple-speed mode of the drive, but we were able to successfully use standard blanks (which are about one-third the price) from a variety of vendors.

For the record

The Toast CD-ROM Pro software is quite easy to install and use. An extension called Toast CD Reader allows the drive to function as a standard CD-ROM drive (with some limitations), while the Toast CD-ROM Pro application is used for writing discs. The drive does not come with Astarte's very good audio-disc recording software, the $999 Toast CD-DA, which is designed for users specializing in recording Red Book standard audio CDs. However, the bundled software will record mixed-mode audio tracks with a more limited amount of control. Complete setup of the drive and software, including checking all of our SCSI IDs, took about 10 minutes.

We tested the Master CD Pro by recording a variety of discs, including single-session and multiple-session Macintosh Hierarchical File System volumes and CD-ROMs conforming to ISO and audio CD standard formats.

Depending on what data your CD will contain, you will need to prepare your source hard disk. Unlike some other CD-R software, which lets you select individual files and folders to record, Toast requires you to record an entire volume (except blank space), which can be an inconvenience.

In practice, you will usually want a defragmented drive containing only the files you plan to put on the finished disc. If you don't have a dedicated drive but have sufficient space on an existing drive, the Toast software can create a temporary partition to which you can copy only the files you plan to record to the CD. In fact, however, our experience with CD-ROM mastering leads us to believe that most users with heavy CD recording schedules will want to devote a hard disk to this task. MicroNet offers a number of integrated enclosures that include both the Master CD Pro and fast hard disk arrays or other storage media (see story below).

The importance of having the right hard drive for mastering CDs is real, although sometimes exaggerated. For our tests, we used a garden-variety 1.6-Gbyte Seagate drive capable of about a 1.3-Mbyte-per-second sustained data transfer rate. We were working on a Quadra 950 with an Apple Power Macintosh Upgrade card. Users will find that so-called AV drives will perform well in this role, since they avoid the periodic thermal recalibration that can cause ruinous interruptions of data flow during the mastering process.

The masters

Once you have moved your data to the hard drive, you're ready to master. The Toast software is extremely simple to use in this regard. The most important setting is the format, which you can choose from the menu of supported disc types, including Mac HFS, ISO 9660, Mac/ISO Hybrid, CD-I, Video CD or Generic CD. An additional check item allows you to add audio tracks to your data disc. For each choice, the main screen offers a different configuration dialog where you can change the necessary settings.

Assuming you're producing a standard Mac HFS volume, check boxes let you choose whether the drive should record free space, build a System 6-compatible desktop file or make the disc a start-up disc for Apple's 300-series CD-ROM drives.

To master the disc, you click the Write CD button. A dialog prompts you to choose whether to write a new disc or add a session to an existing disc. At that point, the software takes over and begins streaming data to the CD. A progress bar and clock indicate remaining time to finish the task. The software includes an excellent feature: After the recording is finished, the software will automatically

See Master CD Pro, Page 40

ED CALDWELL

MicroNet's Master CD Pro 4x recording drive is a well-made, reliable unit that offers fast performance for creating data CD-ROMs. The bundled Toast CD-ROM Pro mastering software adds considerable value to the drive.

score card

Master CD Pro 2.5.2

MicroNet Technology Inc.
List price: $4,495*
Overall value ◆◆◆◆

The Master CD Pro is a very well-built quadruple-speed recording drive whose performance lives up to its billing. The included Toast CD-ROM Pro software is excellent: It is flexible, easy to use and contains a very nice automatic disc-verification feature. We didn't experience any problems with the drive in writing mode, but it failed to play audio CDs and was quite slow at reading standard Mac CDs. While audio specialists will probably need to add more powerful audio software to create audio CDs, overall, we found the drive to be a very good value, particularly if you are primarily interested in creating data CD-ROMs.

Performance ◆◆◆◆◆
Features ◆◆◆◆
Configuration ◆◆◆◆◆
Compatibility ◆◆◆◆
Documentation/support ◆◆◆

**Bundled with Astarte GmbH's Toast CD-ROM Pro software.*

Publishing power station

Users at service bureaus and publishing houses who need a turnkey CD-ROM mastering solution will appreciate MicroNet Technology Inc.'s $11,199 Publishing Station, which combines the Master CD Pro CD-R mechanism, a 4-Gbyte Raven Professional Disk Array (with NuBus or processor direct slot host adapter and Fast and Wide SCSI) and a 200-Mbyte SyQuest cartridge drive into a single housing.

We tested the system on a Power Macintosh 8100 (using the NuBus version of the host card) and found it to be a very fast and convenient solution for CD-ROM publishing. As with the Master CD Pro, the unit ships with Astarte GmbH's Toast CD-ROM Pro mastering software as well as a MicroNet application and extension for using the array drive.

While arrays are nice to have, users shouldn't assume that they're necessary for mastering CD-ROMs using the Master CD Pro (or any other CD-R device, for that matter). MicroNet's 6- to 9-Mbyte-per-second sustained transfer rate is far faster than the 600-Kbyte-per-second rate required to prevent buffer underruns on the 4x CD-R mechanism.

On the other hand, having such a fast drive will very likely allow you to master your discs from even the most fragmented data. In any case, having a fast hard drive bundled with the Master CD Pro won't make recording CD-ROMs any faster, but simply more convenient.

Inclusion of SyQuest's 200-Mbyte mechanism makes the unit especially convenient for service bureaus to use because it supports 200-Mbyte cartridges as well as the ubiquitous 88- and 44-Mbyte disks.

On the opposite end of the price spectrum, MicroNet also recently announced the availability of the $1,895 Master CD Plus, a 2x CD-R drive with the same features as the Master CD Pro system, including the Toast software.

— By Sean Wagstaff

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Master CD Pro

From Page 38

verify the data on the CD against the image volume. This allows you to leave the process unattended and return later to a finished, verified disc.

Performance

We found that the performance of the drive lives up to its billing. At quadruple speed, the unit recorded a 640-Mbyte disc in less than 18 minutes, more than twice the speed of double-speed drives we have reviewed. Unfortunately, Toast's automatic disc verification takes much longer to complete than the actual disc recording. But that's a small complaint, as this feature allowed us to send off our finished discs with confidence.

The Master CD Pro worked perfectly in all respects but one. As a CD-ROM reader, the drive is only fair. We couldn't get it to recognize audio CDs at all — a strange detail, considering that it comes with headphones and stereo jacks — and it was comparable to a single-speed drive at reading standard HFS CD-ROMs. Because most users are likely to already have a CD-ROM drive in their system, this is probably only a minor annoyance, but if you don't, you'll have to factor in an additional $300 or more to assemble a complete CD-mastering system.

Alternatively, MicroNet offers the $5,660 CD-ROM Master 4x4, a single unit that contains both the Master CD Pro and a 4x CD-ROM reader. MicroNet is also working on a software application, called CD Copy, specifically designed to copy and record CDs to hard disks and ultimately record them back to CD.

Documentation and support

MicroNet provides good documentation for the Master CD Pro. It spends several pages just describing the drive and devotes more than 100 pages to the Toast software (including instructions on using it with CD-R drives from other vendors). The drive is covered by a two-year warranty and free technical support is provided via toll call, fax or e-mail.

Conclusions

The Master CD Pro is a very good value for users who need to add CD-ROM recording to their storage options. While the price is fairly steep compared to slower drives, those who do a lot of this kind of work will value the quadruple speed, as well as the intuitive interface and excellent performance of the bundled Toast CD-ROM Pro software. For those who need turnkey solutions, the mechanism is also offered in combination with a variety of other storage options.

The drive is a well-made, reliable unit, with minor flaws: It doesn't measure up as a CD-ROM reader and its audio capabilities are limited by software. However, if you're interested primarily in putting data on CD, we think this drive is well worth considering.

MicroNet Technology Inc. of Irvine, Calif., can be reached at (714) 453-6100; fax (714) 453-6001. □

InfoGenie 1.0.2

Casady & Greene app offers structured info management

Overall value ♦♦♦

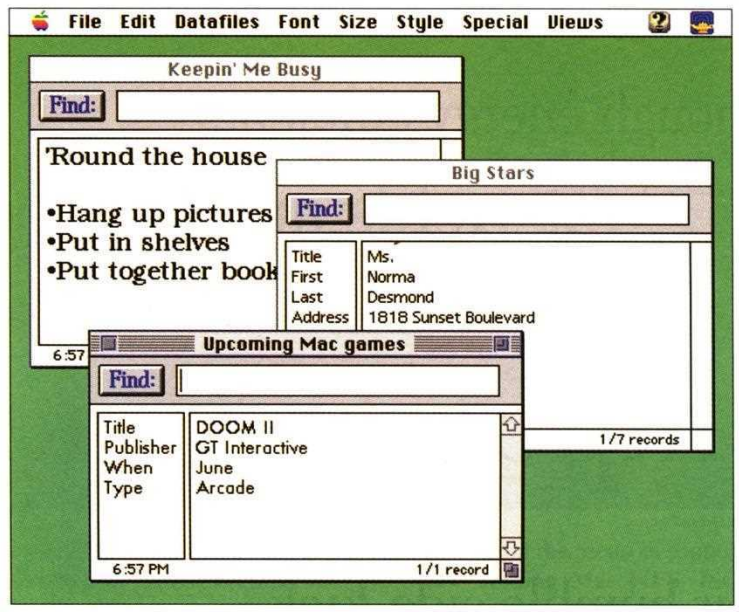
If your three wishes are for Casady & Greene Inc.'s QuickDEX II, PrintDEX II and QuickElope, InfoGenie 1.0.2 is ready to grant them all in a single application. Formerly known as the Super QuickDEX bundle, the $79.95 total rewrite of the classic Rolodex-inspired Macintosh data manager now contains user-configurable fields and supports basic network access, native PowerPC code and System 7.5 Drag and Drop. The biggest change from its QuickDEX days, however, is the addition of field-based data files to InfoGenie's free-form ancestry.

InfoGenie requires as little as 750 Kbytes of RAM and works on any Mac running System 7.0 or later.

Upon creating a new data file in InfoGenie, you choose whether to maintain several convenience features, such as keeping the file in the Data Files menu for easy recall and opening the file every time InfoGenie launches. InfoGenie's windows remain spare. Apart from the solitary Find button, an optional tool bar includes navigation, envelope, printing, help, record addition and deletion buttons, and three numeric buttons that instantly make any of the corresponding data files active, even if they're not open. A font change affects all text in a data file.

Fenced-in fields

Creating field-based data files is very simple because InfoGenie handles only text fields. Fields can wrap to the width of the window but cannot contain a carriage return. The List view differs slightly from those in contact managers such as Now Software Inc.'s Now Contact. InfoGenie lets you resize columns to their "best-fit" size by clicking their titles. Option-clicking sorts a column and Option-Shift-clicking performs a reverse sort. List view supports only a primary and secondary sort criteria, the latter of which must be designated through a dialog box. While you cannot edit an item directly in List view, you can click on it to bring up a basic text-editing window.



Casady & Greene's InfoGenie 1.0.2 combines the former components of Super QuickDEX into a single application that supports both field-based and free-form data as well as multiple files.

InfoGenie's Drag and Drop implementation is among the best we've seen. Words, fields and entire free-form notes can be dragged within data files, between data files and to other programs that support Drag and Drop. The Find field also supports this feature, making it easy to look up items dragged from data-file fields or external sources.

Casady & Greene has excelled in its envelope and label template-design modules, a traditional trouble spot in contact managers. By featuring simple dialog controls and leveraging menu items over several menus, it has avoided the common problem of interface widget clutter. InfoGenie also cleverly and automatically scales text so that it fits within its boundaries on labels and envelopes. Several design fonts are included with popular label style and envelope sizes.

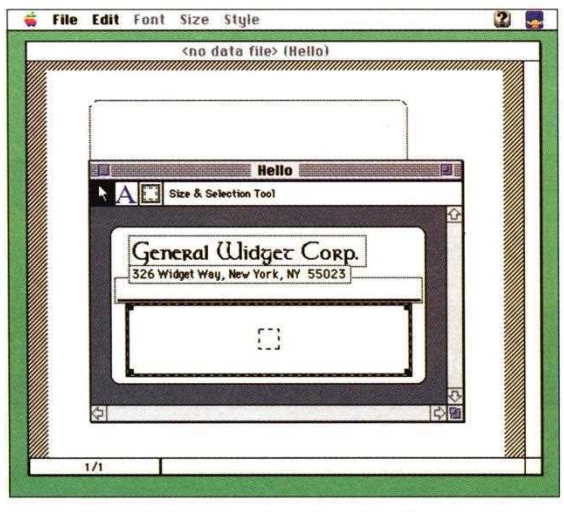
User-configurable fields differentiate InfoGenie from its venerable competitor, Prairie Group Inc.'s InTouch (see MacWEEK, May 22, Page 36), which boasts slick data interchange with other applications. InfoGenie seems more adept at organizing diverse forms of information without the complexity and computing requirements of more sophisticated PIMs.

Performance

QuickDEX's speed always lived up to its name, and InfoGenie also finds text instantaneously through hundreds of records. The Find command supports compound-word and case-sensitive searches, and has a useful Replace feature. However, a few bugs crawled into the Genie's lamp. Version 1.0.2 unexpectedly quit twice even with 2 Mbytes of RAM allocated to InfoGenie and extensions turned off. Canceling an attempt to lay out labels forced a more graceful exit in which we were prompted to save files. In addition, we couldn't indicate how addresses should appear on envelopes for the frontmost data file unless it had been added to the Data Files menu.

The only reproducible bug occurred when we canceled a request to open a file in Envelope view after it had been moved: InfoGenie unexpectedly quit. Also, viewing any field-based database in List view caused any other open files to be hidden without warning and prevented us from opening other free-form files without first switching back to the basic view. We would like to see List view become nonmodal and be able to have multiple windows open from the same data file. Casady & Greene said it is working to address these issues.

Toward the end of our review process, Casady & Greene shipped Version 1.0.4, claiming to have fixed all known bugs. Although we did not have time to retest all of our bugs, we did notice that the upgrade had not corrected the missing envelope-templates bug.



InfoGenie's Label and Envelope Template Designer feels like a specialized application instead of a crowded dialog.

Documentation and support

The 140-page spiral-bound manual is densely laid out, has an incomplete index and would benefit from breaking up complex procedures into smaller steps. It does, however, include excellent sections for Macintosh beginners and those upgrading from QuickDEX II. Balloon help is provided for the tool-bar buttons, and you can access on-line help from data file windows.

Casady & Greene provides support via toll call and Mac on-line services, although service is slow. It took more than 24 hours for a technical support person to return a call.

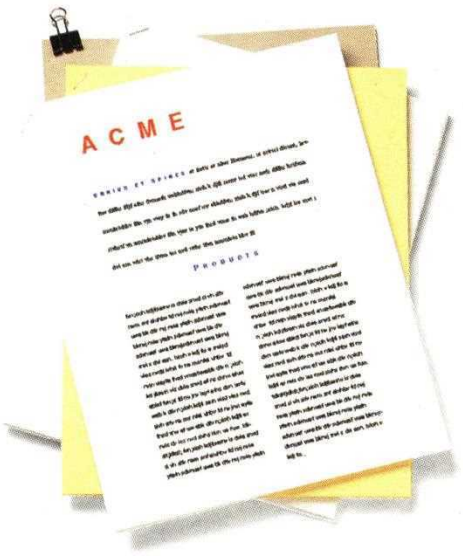
Conclusions

InfoGenie rekindles QuickDEX's old rivalry with Prairie Group's InTouch, with field-based data, multiple open data files, Drag and Drop, and a cleaner layout editor. There are problems, however, such as the limited List view, missing templates, data file restrictions and assorted bugs. Nevertheless, the template design in a few of its modules and Casady & Greene's commitment to improvement make InfoGenie a promising contender in the Mac data-management market.

Owners of QuickDEX II and Super QuickDEX can buy InfoGenie for $24.95.

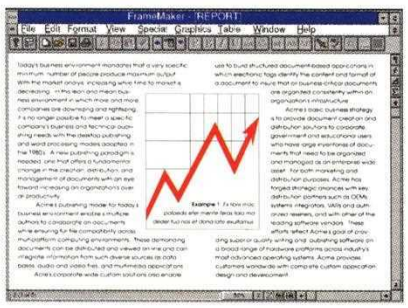
Casady & Greene Inc. of Salinas, Calif., can be reached at (408) 484-9228 or (800) 359-4920; fax (408) 484-9218; c&g@casadyg.com. — *By Ross Scott Rubin*

A YEAR IN THE LIFE OF A FRAMEMAKER DOCUMENT.



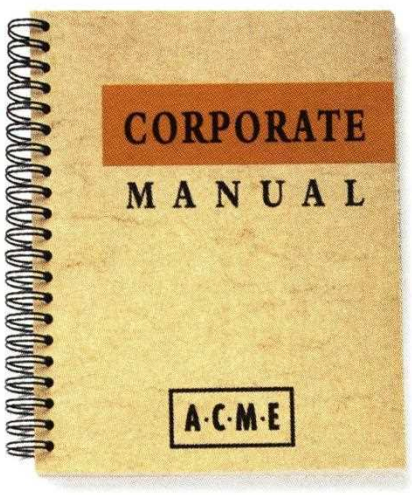
JAN 14 *Acme Development Company's marketing department worked as a team to create its first marketing plan. Everyone contributed, each using FrameMaker's text, graphics, layout, formatting, and long document features. The end result was the best marketing plan in Acme history.*

SEP 27 *Oops! Fido just made a meal out of some essential drawings. Fortunately, FrameMaker can import directly from the architect's workstation, since it supports popular CAD, graphic, and word processing file formats. It even runs on platforms like Macintosh, UNIX, and Windows.*

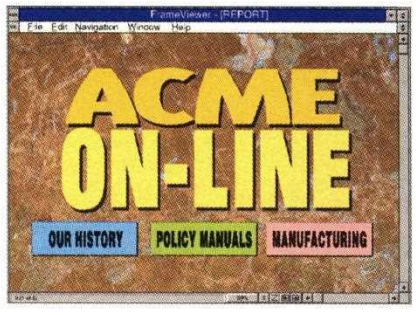


MAR 28 *Business was booming, so Acme included its skyrocketing sales figures in the marketing plan. FrameMaker imported a variety of graphics, and flowed text neatly around them with the help of the new auto text wrap feature. It even has unsurpassed table editing for multipage tables.*

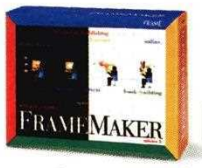
DEC 3 *Soon Acme had its very own Web site to help disseminate company information to employees and customers all over the world. So naturally, Acme made extensive use of FrameMaker's new HTML export capabilities. Now all its material could be published directly to the Internet.*



MAY 10 *Acme hit the bigtime and went public, becoming Acme Corporation. To make sure all the IPO documentation was consistent, FrameMaker's import text and graphics by reference feature was used extensively for retrieval and update of boilerplate information created in FrameMaker or other applications.*



JUL 1 *Suddenly Acme had a need to communicate online–to save time, paper, and even a few trees. So they used FrameViewer™ for instant online distribution with no additional post-processing or conversion required. It even supports FrameMaker's automatically generated hypertext links.*



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Erv Barnes (left), Director of Information Technology, and Ed Herrelko (right), Executive Vice President of Group Sales, at Whirlpool Corporation, Benton Harbor, Michigan

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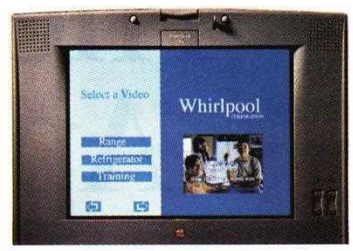
–Ed Herrelko



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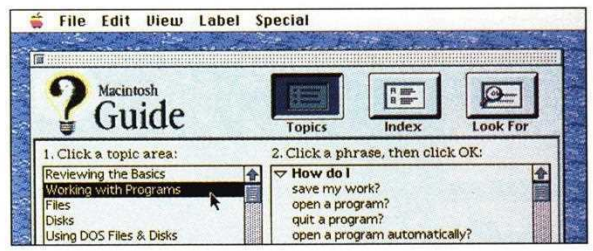

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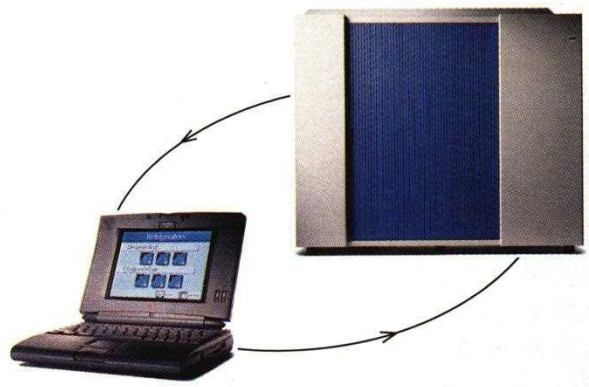

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*Whirlpool uses RemoteWare from Xcellenet, Inc., for access to the IBM mainframe, Passport for Macintosh from Advantis for IBM 3270 terminal emulation and cc:Mail Mobile from Lotus Development Corporation to exchange e-mail between Macintosh and Windows environments.

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MW APTI

SHARE THE MARKET

The group scheduling market is expected to grow 39 percent annually from 1994 to 1998.

— Dataquest Inc.

E-MAIL

Mail-enabled apps offer more than message exchange

By Michael Miley

Get group schedulers and database access with integrated messaging systems.

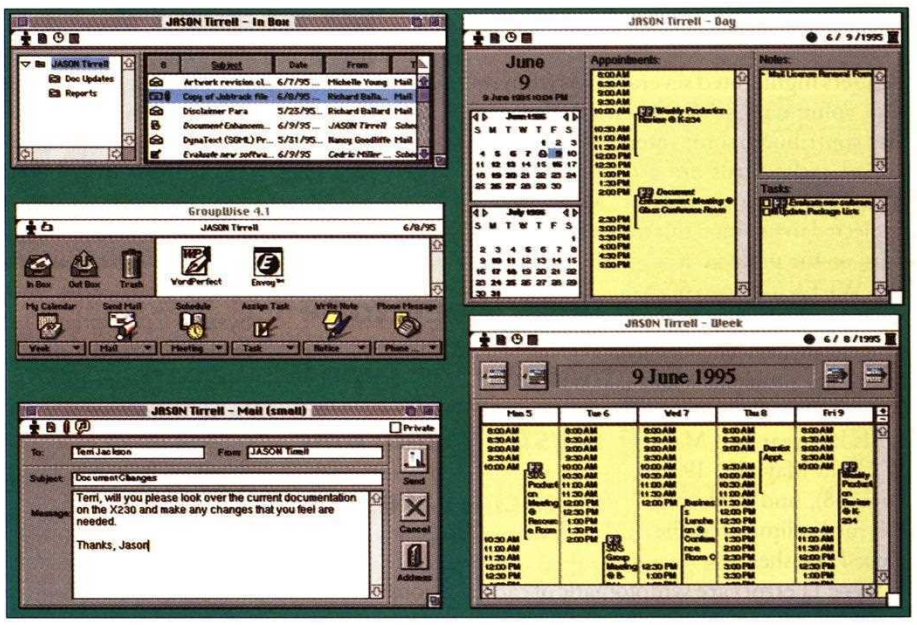
No single network service offers more communications capabilities for teams that need to collaborate than e-mail. But for workgroups, sending memos with file attachments is basic stuff. The directory-access and file transport capabilities of mail servers can be leveraged with other applications to provide higher-level collaboration services. These functions include group scheduling and project management, bulletin board services, conferencing, forms routing, and database access.

Productivity applications, such as word processors and spreadsheets, can also use e-mail capabilities. Scripts can be used to further customize this interapplication communication, letting users roll their own groupware solutions around existing e-mail services.

Nine Macintosh e-mail solutions exist, and each vendor has wrapped some groupware products around its core mail facilities. The two broad e-mail categories are total solutions that provide a wide suite of high-level groupware applications and partial solutions that add individual services, such as group scheduling or routing capabilities, to the basic e-mail package. The first tier includes Digital Equipment Corp.'s TeamLinks Office, Lotus Development Corp.'s Notes and Novell Inc.'s GroupWise.

GroupWise has an integrated mail, scheduling and task-management product for LANs using Intel-standard PC-based servers. Lotus Notes is a full-fledged groupware development environment.

TeamLinks offers an X.400/X.500 enterprisewide backbone strategy akin to Hewlett-Packard Co.'s OpenMail. TeamLinks is a high-end set of e-mail and groupware client-server solutions, with a Digital MAILworks or All-In-1 Mail back end running OpenVMS on a VAX or Digital's Unix on an Alpha AXP server. TeamLinks Mail for Macintosh is PowerTalk-compliant. The TeamLinks Routing application uses the mail service directly, and forms can be designed in the Routing forms editor with roles and rights for intelligent routing, or they may be developed using a third-party forms product such as FormFlow from Toronto-based Delrina Corp.



The Universal In Box (upper left) in Novell's GroupWise 4.1 gives users a single access point for e-mail, appointments, tasks, voice mail and other message types. A wide variety of views offers users options on how to display different information.

Teamwork

The Hydro-Electric Commission of Tasmania, Australia, uses TeamLinks, which is spread across 40 offices and 1,800 employees. The commission provides hydroelectric power to all of Tasmania. Mike Williams, manager of information services, said Macs are included in the corporate culture, and PC and Macintosh users exchange Microsoft Word and Excel documents over the TeamLinks Mail backbone.

"HEC's main purpose in installing electronic mail capabilities is to move away from paper-based approaches," Williams said. "However, because TeamLinks Mail is based on the international X.400 mail standard, it also enables the HEC to communicate outside its corporate boundaries."

Digital's video text-based retrieval system has also been installed with TeamLinks at HEC to update, distribute, file and retrieve information on-line, including such things as the Commission's telephone directory, company policies and procedures, chart of accounts, and human resources data. Calendar Manager, a group scheduling application from Russell Information Sciences Inc. of Laguna Hills, Calif., has also been implemented. HEC claims overhead expenses have been reduced by $900,000 per year, and pay back was achieved in 12 months.

In contrast to TeamLinks, Lotus Notes is an internetwork groupware development environment with database templates. NotesMail acts as the central mail service, replaceable at the back end by cc:Mail. Notes servers run on OS/2, Unix, Novell NetWare, Windows and Windows NT, and clients include Macs. Notes has a large third-party vendor market in which products ranging from group scheduling to video conferencing and work flow may be added to the core Notes package. Custom Notes applications can be developed using Lotus Forms and include high-level C coding, while groupware developed in Notes can use modeling products from Alameda, Calif.-based Action Technologies Inc. for developing work flows.

U.S. West Inc., a regional Bell operating company based in Englewood, Colo., serves 14 western states as the primary telephone provider. It uses Lotus Notes and cc:Mail as its main integration and groupware environment. Part of the impetus to move to Notes was to simplify e-mail, since 17 different e-mail systems made enterprisewide messaging difficult. Currently, about 3,000 users have been converted to Notes; up to 5,000 more are to be added by the end of the year. Sixty percent of the clients are Macs. There are 40 production servers running on OS/2, NetWare, Windows NT and Unix.

"We leverage NotesMail and cc:Mail in our extensive work-flow and forms routing applications," said John Shultz, MIS senior project manager for groupware at U.S. West. "Typically, mail is used to notify people when an approval request is made or when a task is finished. Notes' DocLink facility is used with NotesMail to submit the forms for approval."

But U.S. West's use of Notes is far more extensive. "Our applications are numerous and include discussion, policy and procedure databases [as well as] customer track-

See Solutions, next page

Hydropower moves

At the Canadian Hydrographic Service in Ottawa, systems analyst Greg Levonian is converting from CE Software Inc.'s QuickMail to Apple's PowerTalk/PowerShare. "We're responsible for collecting nautical data on internal waterways and for building navigational charts for shipping," Levonian said. "We produce reports with document attachments, which we send around with PowerTalk/PowerShare, utilizing the mailer support in Microsoft Word, Excel, PowerPoint, and ClarisWorks."

CHS, which spans across five offices, has 20 to 90 Mac users per site and PowerShare servers running on Mac LC 475 machines. It is prototyping a work flow over PowerTalk/PowerShare, using the Informed Foundation forms tools from Shana Corp., to automate the process of tracking requisitions for supplies. "What I'm hoping PowerTalk/PowerShare will do is allow the organization to work as a cohesive unit across all five regions," Levonian said. "We'll have a common hierarchical directory structure for our e-mail, with applications working on top of this database. PowerTalk/PowerShare has fantastic open-ended architecture."

— By Michael Miley

MACINTOUCH RIC FORD

Looking for more details inside Mac OS, memory

Readers highlighted several items from recent columns that merit clarification and also contributed some interesting notes.

Bad cache cards are a classic source of Type 11 errors in Power Macs, and I neglected to mention this in the June 19 column on the problem (see MacWEEK, Page 50). Some early Power Mac 8100/80 owners encountered these problems with Apple's bundled cache cards last year (see MacWEEK, May 30, 1994, Page 38), and replacing the cards eliminated the Type 11 crashes.

There seems to be more to the Type II mystery than bad cache cards.

Type 11 errors are symptomatic of cache memory defects, although other crashes can also occur. Dynamic-RAM problems may be more random. There seems to be much more to the Type 11 mystery than just bad cache cards, however.

In the May 29 issue (see MacWEEK, Page 33), I mentioned that Apple's Thread Manager can be a factor in other crashes, but I skipped over several details. Thread Manager can be confusing because it exists in a variety of versions and forms, and it is installed in a variety of ways.

System 7.5 includes Thread Manager 2.0 within the System file, making it a standard part of the Mac OS for the first time.

Apple currently provides Thread Manager 2.0.1 as an extension file in its software update libraries on-line, but this file is normally delivered and installed by third-party packages. The company distributed a newer Thread Manager 2.1 extension on the April developers CD-ROM, and System 7.5.1 apparently includes this code, too. System 7.5 Update 1.0 installs ThreadsLib 2.1, a shared library file.

Applications that require Thread Manager should work with System 7.5.1 alone, and removing extraneous Thread Manager extensions may help avoid conflicts. With older systems, a Thread Manager extension may be required for a few specific applications, but try removing the extension, updating it or upgrading to System 7.5.1 if crashes or freezes occur.

More memory matters

Consultant and developer Greg Trimper wrote to comment that turning off Modern Memory Manager on Power Macs should not be a "last resort" for debugging Mac crashes but rather one of the first steps, especially on systems running old programs.

I have no confirmed reports of incompatibilities with Modern Memory Manager, and turning it off reduces performance, but it is easier to flip this switch in the Memory control panel and test the result than to test SIMMs and cache cards for problems. If there are any bugs in this part of the operating system, the results could be both elusive and unpleasant.

GORDON STUDER

Another memory matter trapped some RAM Doubler users with older Macs that support 24-bit addressing. Resetting parameter RAM resets addressing from 32-bit to 24-bit mode, and, prior to System 7.5 Update 1.0, there was a problem with floppies not mounting on the desktop while running RAM Doubler in 24-bit mode.

Connectix Corp. recommends updating to System 7.5.1 because it fixes this problem and several others. (Jeff Woolsey of Connectix tech support also notes that updating disk drivers has solved many problems for people who upgrade to System 7.5.1, confirming other, similar reports.)

RAM Doubler itself is now at Version 1.5.2. The latest release addresses problems with file sharing, CD-ROMs and PowerPC upgrade cards, and it adds support for PowerPC 603-based machines. An updater is available on-line. (Version 1.5.2A increased the memory allocation of the updater application to avoid glitches that occurred with Version 1.5.2 of the updater on some systems. Nothing else changed.)

Jeff Baudin of MicroMat Computer Systems of Novato, Calif., the company that developed Tech Tool (see MacWEEK, May 15, Page 38), noted a different kind of issue with PRAM: It seems that some third-party vendors may be using parts of PRAM for their own purposes, contrary to Apple's guidelines, and this usage may conflict with Apple's own changing uses of PRAM. Debugging this kind of problem is not easy; disabling extensions has no effect.

Video bonus

Lee Busch confirmed a little bonus in System 7.5 Update 1.0 for Quadra 700 owners who have PowerPC upgrade cards. With a full complement of video RAM installed, the system update adds a monitor option for thousands of colors on a 19-inch monitor to this configuration. It may not work, however, on early Quadra 700 models, which apparently have slightly different video circuitry. □

Comments on MacInTouch are welcome at 7 Parmenter Ave., Maynard, Mass. 01754. Phone (508) 897-2621. Please address e-mail to 72511,44 on CompuServe or ricford@macintouch.com on the Internet. The MacInTouch home page is at http://www.macintouch.com/~ricford/.

SOLUTIONS

From previous page

ing and fax," Shultz said. "In the future, we'll publish multimedia World-Wide Web pages for our customers."

Cheaper accommodations

The second tier of mail systems that enable groupware applications includes Apple's PowerTalk/PowerShare system-level mail for System 7.5, Banyan Systems Inc.'s BeyondMail, Lotus' cc:Mail, CE Software Inc.'s QuickMail, HP's OpenMail, and Microsoft Mail for the Macintosh.

Here, the e-mail storage, transfer and directory systems provide the basis for groupware applications, such as group scheduling or forms routing. Each company, except CE Software, provides its own or a third-party group scheduler that works with the Mac and the mail system. Apple, Banyan, CE Software and Microsoft provide tools for developing Mac-usable forms for work flows.

Banyan's BeyondMail and its new BeyondMail for Mac for Intelligent Messaging III make full use of Banyan's StreetTalk global directory service, MailMinders (a set of user agents to automate mail-handling) and BeyondRules (its scripting language for creating message-based work flows). Forms are created in Windows, in BeyondMail or by using third-party products, such as RealWorld Workflow products from Waltham, Mass.-based JetForm Corp. These forms can be filled out on the Mac with the JetForm Filler for Mac, which also works with cc:Mail, Lotus NotesMail and Microsoft Mail.

Apple's PowerTalk/PowerShare is a system-level mail solution. PowerTalk is provided as an integral part of System 7.5 and is usable on a peer-to-peer and modem basis without any additional purchase. PowerTalk provides a universal desktop mailbox, the AppleMail mailer and support for mail in applications. It also provides catalogs and information cards, DigiSign digital signature technology, and PowerTalk Key Chain access and security. PowerShare Collaboration Servers add client-server capability, as well as enhanced network security.

Some third-party products offer PowerTalk/PowerShare mailer support. These include groupware-oriented products such as Face to Face for Macintosh, group document review and annotation software from Crosswise Corp. of Santa Cruz, Calif.; Office Tracker Pro, group scheduling, time management and in/out tracking software from Milum Corp. of Austin, Texas; and the Informed Foundation forms-processing applications from Shana Corp. of Edmonton, Alberta. A full Solutions Guide for PowerTalk and PowerShare is available from Apple. □

PRODUCT INFO

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System 7.5 (PowerTalk): $134.99;
PowerShare Collaboration Servers: $999
Cupertino, Calif.
(408) 996-1010 or (800) 767-2775

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BeyondMail 2.1 for Macintosh: $995
(10-user professional edition);
BeyondMail for Macintosh for Intelligent Messaging III: $1,495
Westboro, Mass.
(508) 898-1000 or (800) 222-6926

CE SOFTWARE INC.
QuickMail for Macintosh 3.0: $649
(10-user pack)
West Des Moines, Iowa
(515) 221-1801
or (800) 523-7638

DIGITAL EQUIPMENT CORP.
TeamLinks Office 2.1 for Macintosh:
$299-$399; $55-$80 (Mail); $85-$99 (VTX, Conferencing); $85-$110 (Routing); $139-$320 (Calendar Manager)
Nashua, N.H.
(603) 881-2000 or (800) 344-4825

HEWLETT-PACKARD CO.
HP OpenMail Macintosh Client: $35-$90
Palo Alto, Calif.
(800) 752-0900

LOTUS DEVELOPMENT CORP.
cc:Mail Desktop for Macintosh 2.2:
Starts at $59;
Lotus Notes for Macintosh: Starts at $275
Cambridge, Mass.
Phone (617) 577-8500 or (800) 346-1305

MICROSOFT CORP.
Microsoft Mail for the Macintosh: $269
(server), $269 (five-pack client)
Redmond, Wash.
(206) 882-8080 or (800) 426-9400

NOVELL INC.
GroupWise 4.1 Macintosh Client: $695
Orem, Utah
(801) 429-7000 or (800) 861-2507

Six Things *Not* To *Forget* When Buying *Memory.*

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Memory Worksheet	
6 MB	System 7.0
8 MB	Adobe Illustrator
8 MB	QuarkXPress 3.3
22 MB	**Software Memory**
8 MB	Data, Buffers, etc.
30 MB	**Total**

To figure out your true memory needs, add up the recommended memory for the most system software, utilities and application software that will be opened at one time, then add sufficient memory to hold your working data and "undo" buffers. If you need help, send for our free Memory Survival Guide.

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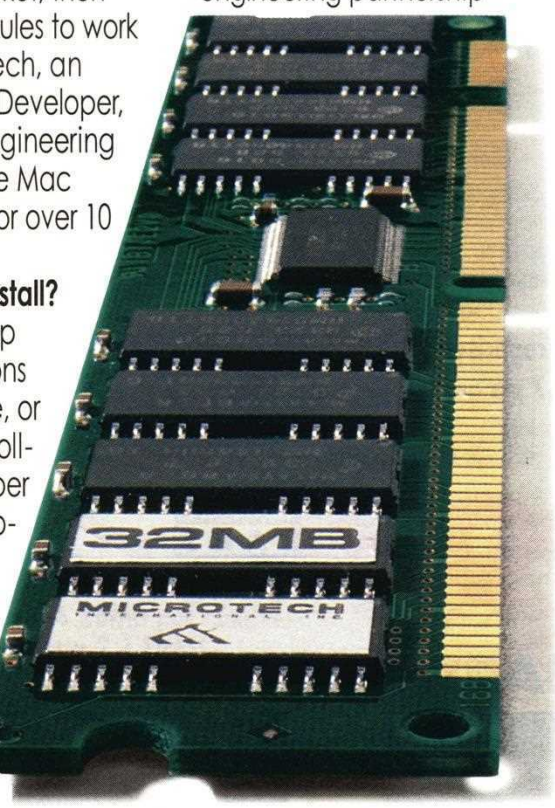
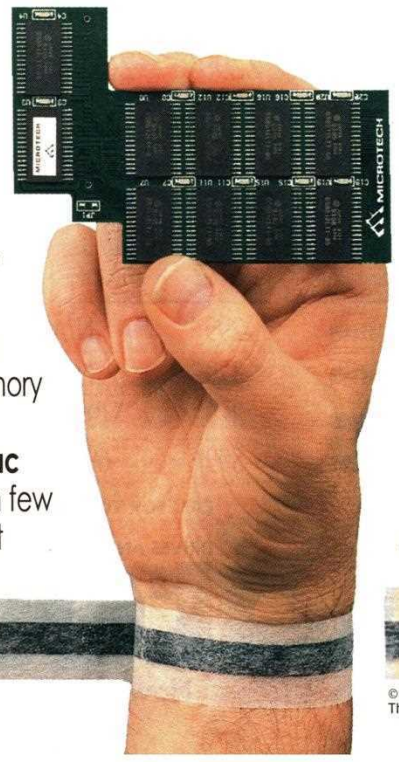
Is it made by Mac specialists? With few exceptions, most memory suppliers create and sell about 90% of their modules to the PC market, then modify these modules to work on a Mac. Microtech, an Authorized Apple Developer, is dedicated to engineering memory just for the Mac market. And has for over 10 years.

Is it easy to install? Yes, but we still ship detailed instructions with every module, or you can call our toll-free support number if you run into problems. We also make it safe to install. Microtech includes an anti-static wrist band so you don't accidentally zap your memory during installation.



DIMMs available

Is it made for my type of Mac? Since we have an "engineering partnership" with Apple, every Microtech module is designed for a specific Macintosh. For example, our PowerMemory™ takes full advantage of the RISC processor inside the Power Mac with features like optimized refresh for improved efficiency, and a lower chip count for higher reliability. Unlike most suppliers, we only use self-refresh DRAM in our Coyote™ memory to protect against loss of data when your PowerBook goes to sleep.



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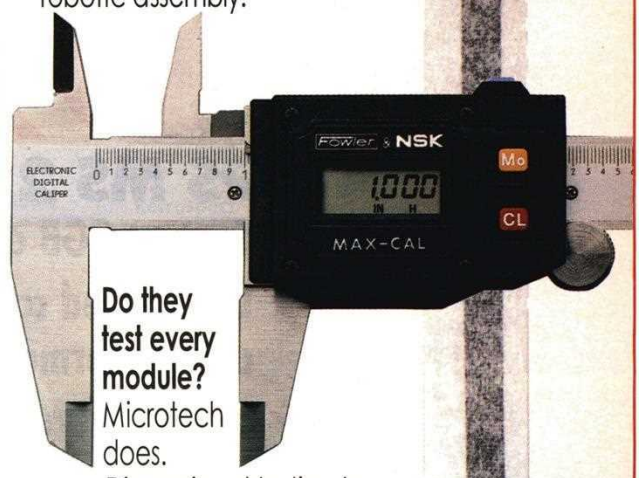

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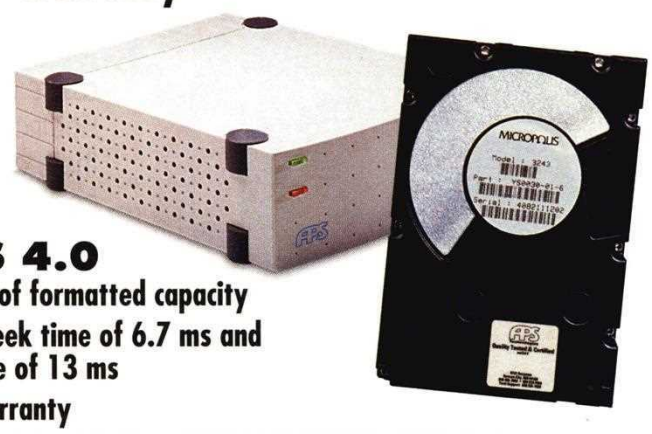

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	APS Q 1080[3] Quantum 1080 Fireball mechanism	1042MB	399.95	499.95
MacUser ZD LABS ★★★½	APS ST 1.0[5] Seagate ST 31230N Hawk mechanism	1010MB	549.95	649.95
	APS Q 1.0[5] Quantum Atlas XP31070 mechanism	1025MB	699.95	799.95
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	APS ST 2.0[5] Seagate ST 32550N Barracuda	2047MB	999.95	1099.95
	APS Q 2.0[5] Quantum Atlas XP32150 mechanism	2050MB	999.95	1099.95
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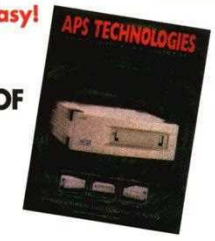

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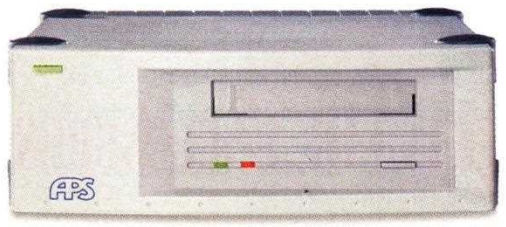

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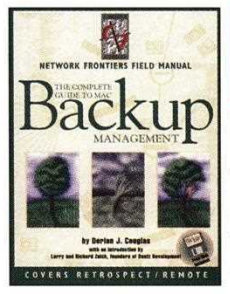

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DLT40 Data cartridge	*109.95*	*—*	*—*
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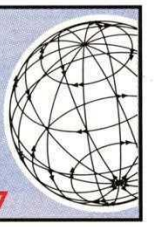

- Hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable. All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software and APS Technologies'APS POWERTOOLS SCSI formatter/hard disk partitioner.
- All external drive products and cases come with a premium 25 x 50 SCSI cable.
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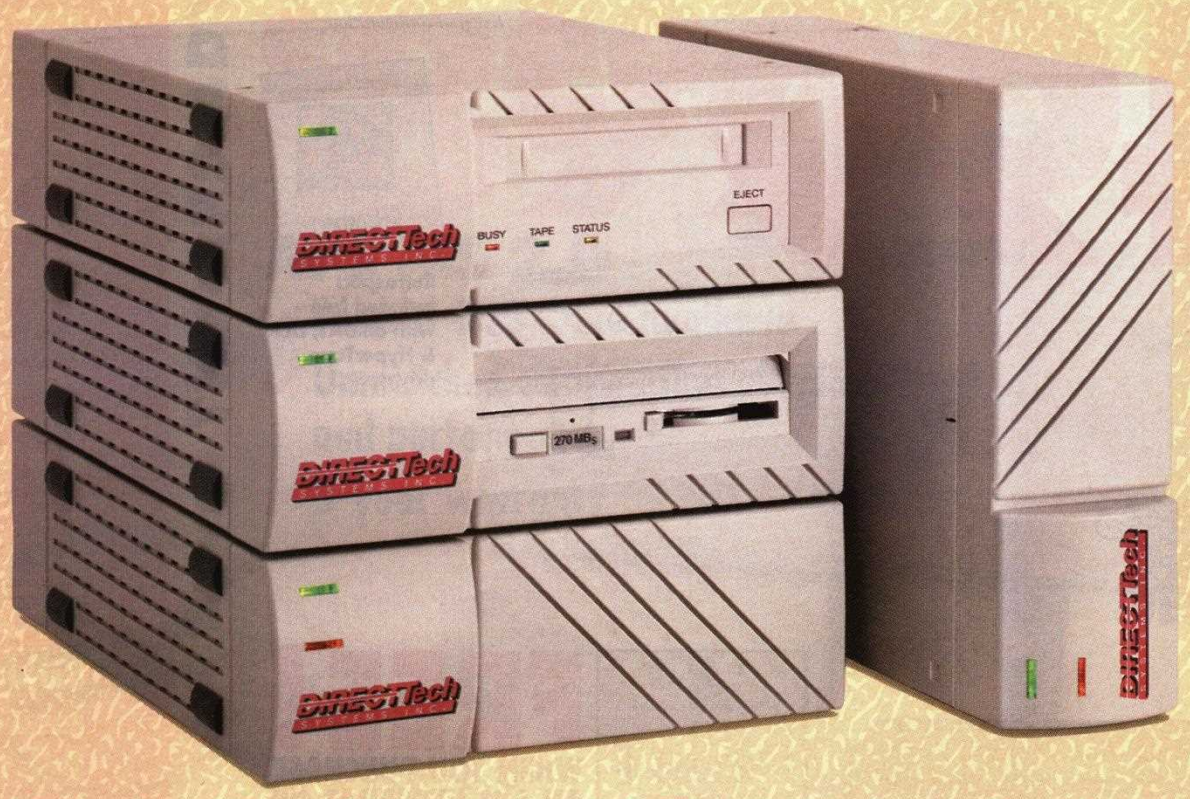
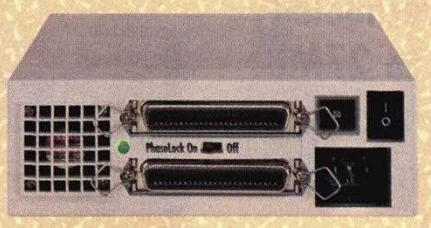


Phaser Enclosures can also be set on end.



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540 MB	DT-540LT	Quantum	3.5"	11ms	4500	2 yrs	$235	$310
730 MB	DT-730LT	Quantum	3.5"	11 ms	4500	2 yrs	$275	$350
1.0 GB	DT-1080AL	Quantum	3.5"	9.5 ms	7200	5 yrs	$590	$665
1.05 GB	DT-31230	Seagate	3.5"	9.0 ms	5400	5 yrs	$515	$595
2.0 GB	DT-3221	Micropolis	3.5"	8.5 ms	7200	5 yrs	$950	$1,025
2.0 GB	DT-32150	Quantum	3.5"	8.0 ms	7200	5 yrs	$990	$1,065
2.0 GB	DT-2490	HP	3.5"	9.0 ms	6400	5 yrs	$1,100	$1,185
2.1 GB	DT-32550	Seagate Barracuda	3.5"	8.0 ms	7200	5 yrs	$1,050	$1,125
2.1 GB	DT-32550W	Seagate Barracuda Wide	3.5"	8.0 ms	7200	5 yrs	$1,199	$1,299
4.3 GB	DT-3243	Micropolis	3.5"	8.5 ms	7200	5 yrs	$1,395	$1,475
4.3 GB	DT-15150	Seagate Barracuda	3.5"	8.0 ms	7200	5 yrs	$1,499	$1,579
4.3 GB	DT-15150W	Seagate Barracuda Wide	3.5"	8.0 ms	7200	5 yrs	$1,599	$1,799
4.3 GB	DT-4280	Quantum	3.5"	8.0 ms	7200	5 yrs	$1,195	$1,275
9.0 GB	DT-1991	Micropolis	5.25"	12 ms	5400	5 yrs	$2,275	$2,375
9.0 GB	DT-410800	Seagate Elite 9	5.25"	11 ms	5400	5 yrs	$2,750	$2,850

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Capacity	Model No.	Mechanism	Size	Seek	RPM	Warranty	Internal	PHAZER-I
1.05 GB	DT-31230AV	Seagate	3.5"	9 ms	5400	5 yrs	$565	$645
2.0 GB	DT-3221AV	Micropolis	3.5"	8.5 ms	7200	5 yrs	$1,000	$1,080
2.1 GB	DT-32550AV	Seagate Barracuda	3.5"	8.0 ms	7200	5 yrs	$1,100	$1,180
4.3 GB	DT-3243AV	Micropolis	3.5"	8.5 ms	7200	5 yrs	$1,395	$1475
4.3 GB	DT-15150AV	Seagate Barracuda	3.5"	8.0 ms	7200	5 yrs	$1,550	$1,630
9.0 GB	DT-1991AV	Micropolis	5.25"	12 ms	5400	5 yrs	$2,499	$2,599
9.0 GB	DT-410800AV	Seagate Elite 9	5.25"	11 ms	5400	5 yrs	$2,800	$2,900

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Capacity	Model No.	Internal	PHASER-I
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200 MB	SQ5200	$420	$480
270 MB	SQ3270	$420	$470

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4-8 GB	Sony-5000	DDS-2	$1,165
4-8 GB	HP-1533A	DDS-2	$1,360
5-10 GB	Exabyte-8505	8mm	$2,275
10-20 GB	DLT-2000	DLT	$3,599

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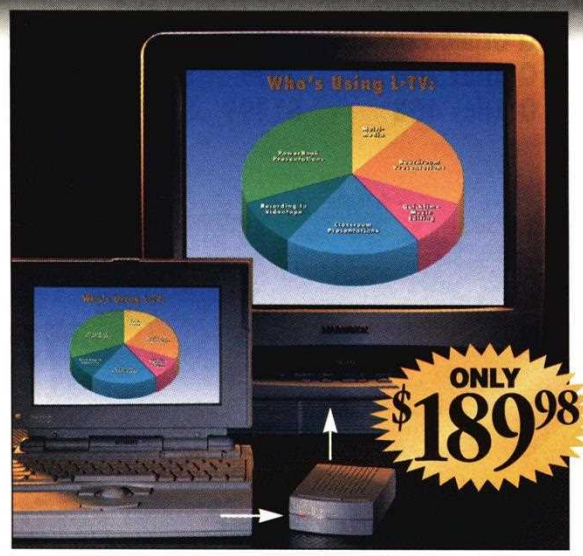

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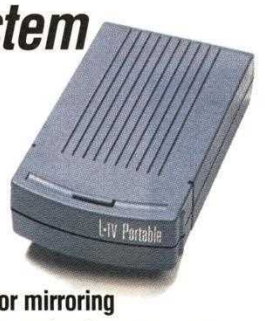

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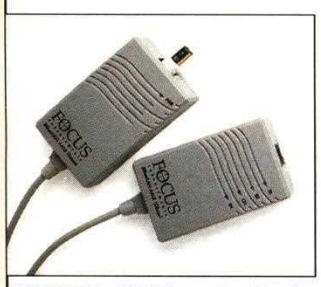

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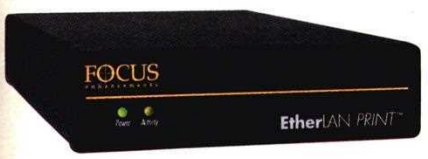

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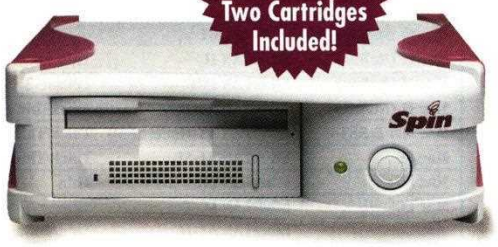

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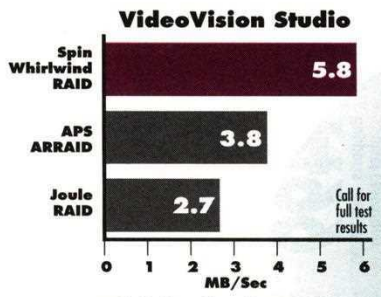

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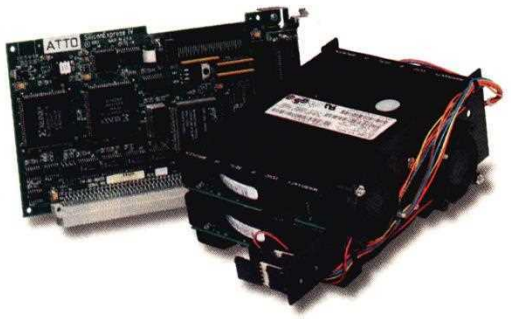

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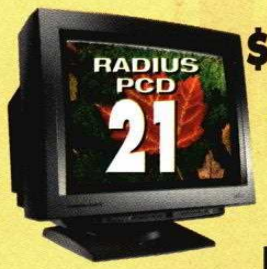

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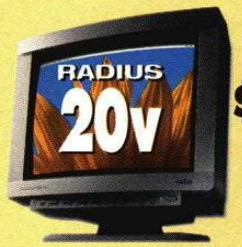

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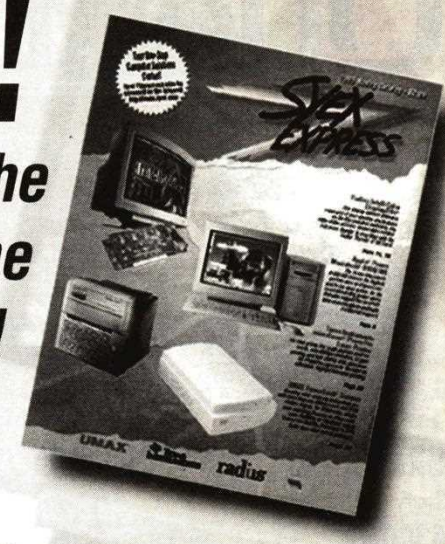

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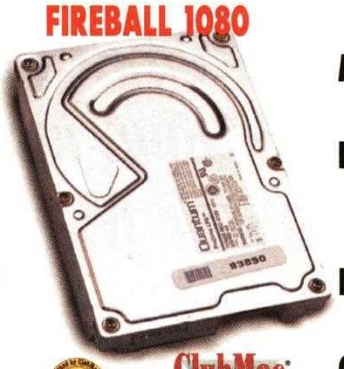

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1080MB	C109 1202	**$399**	C109 1203	**$459**
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$389

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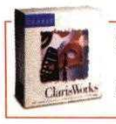

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MacUser ★★★★ February 1995

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- Data transfer rate up to 4MB/sec (sync)
- SCSI-2 interface
- Backward compatible with 105MB cartridges
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C109 1004

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6X Speed

- Blazing 900 KB/sec
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$199 N024 1008

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5.25" Full Height						
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ClubMac 4X CD-ROM

- 600KB/sec data transfer rate
- 190ms average access time
- Caddy-less design
- LED light, headphone jack and RCA jacks
- CharisMac's CD AutoCache driver software
- ONE Year Warranty

$249 C109 9546

ClubMac 2X CD-ROM

- 300KB/sec data transfer rate
- 320ms average access time
- Caddy-less design
- LED light, headphone jack and RCA jacks
- CharisMac's CD AutoCache driver software
- ONE Year Warranty

$159 C109 9543

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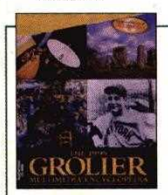

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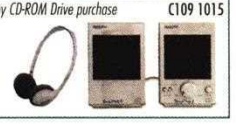

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The ClubMac 2.0GB DAT drive features 20sec average data access time, up to 266KB/sec data transfer rate, SCSI-1/SCSI-2 interface and 60,000 hrs MTBF.

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$729

BUNDLED WITH Retrospect v2.1 Backup Software

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ClubMac 5.25" OLYMPUS 1.3GB

- 29ms ave. seek time
- 3,500 RPM rotational speed

$1499 C109 5022

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- 28ms ave. seek time
- 4,200 RPM rotational speed

MacUser ★★★★ February 1995 **$579** C109 5020

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ClubMac drives are preformatted and thoroughly tested. ClubMac Optical drives include a 30 Day Money Back Guarantee, ONE Year Warranty, a FREE formatted optical disk, SCSI Director Formatting Software, pre-loaded Apple system software, 25/50 pin SCSI cable and power cord for external drives, user's guide, and Switchable Active Termination.

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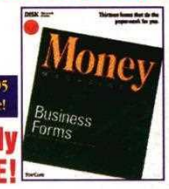

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Energy Star EPA Pollution Preventer

3 Year Warranty

14" MultiSync XV14	(N026 1016)	$319
15" MultiSync XV15	(N026 1015)	$435
15" MultiSync XE15	(N026 1006) / XP15 (N026 1005)	$549 / 599
17" MultiSync XV17	(N026 1022) / XP17 (N026 1009)	$759 / 1049
21" MultiSync XE21	(N026 1010) / XP21 (N026 1011)	$1829 / 2199

IntelliColor Display/20e

The Radius IntelliColor Display/20e is part of the next generation in professional two-page color displays. It delivers unrivaled command of your desktop, from on-the-fly resolution switching to state-of-the-art color temperature control. Combined with Radius' IntelliColor software, it allows you to emulate 3 lighting conditions and user-adjustable color temperature, so you get more accurate color representation.

$1979

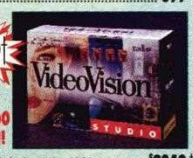
MONITORS

R016 1013	**PressView 21T Display System** (PV2102) 21" Trinitron, 640 x 480 to 1600 x 1200	$3129
R016 1016	**SuperMatch 21•T XL Trinitron** (STD2102) 21" Trinitron, 1600 x 1200	$2139
R016 1009	**IntelliColor Display/20e** (0461) 20" Trinitron, 640 x 480 to 1600 x 1200	$1979
R016 1007	**PrecisionColor Display/17** (0460) 17" Trinitron, 640 x 480 to 1600 x 1200	$959
R016 1030	**PrecisionView 17** (RD1705) 17" Trinitron, 1024 x 769	$899

VideoVision Studio 2.0

With JPEG hardware compression and decompression for full-screen, full-motion recording and playback from a hard disk, VideoVision Studio combines the power and flexibility of the Macintosh with the ease and transportability of video tape.

$2949



PowerMac 8100 Compatible !!

MULTIMEDIA SOLUTIONS

R013 1018	**VideoVision Studio 2.0** (0500) NEW and IMPROVED, now compatible with the PowerMac 8100	$2949 †
R013 1020	**VideoVision Studio 2.0 Upgrade** (0505) JPEG daughtercard	$1759
R013 1026	**SpigotPower AV** (DV1630) captures full-screen 24-bit color video up to 30 frames/60 fields per sec	$759
R013 1065	**SpigotPro AV** (0514) captures full-screen 24-bit color video up to 30 frames/60 fields per sec	$1249

radius

Thunder Series GRAPHIC ACCELERATORS

Super Resolution at Earth-Shaking Speed.

as low as $1899

Thunder Series Cards
Blow the doors off Power Mac

Three Thunder IV GX cards extend the 24-bit resolution of the PowerMac's built-in-video. Accelerated 24-bit color, built-in Photoshop acceleration, CMYK acceleration, hot-key resolution switching, pan and zoom, color composer and 10-bit DAC add up to make these cards the number one choice for image processing, compositing and illustration.

FREE* ColorComposer software

Adobe charged

GRAPHIC CARDS

R013 1059	**Thunder IV GX•1600** (0513) 24-bit support to 1600 x 1200	$2799
R013 1060	**Thunder IV GX•1360** (0446) 24-bit support to 1360 x 1024	$2289
R013 1061	**Thunder IV GX•1152** (0485) 24-bit support 1152 x 870	$1899
R013 1062	**Thunder/24 GT** (0491) 24-bit support to 1152 x 870, PhotoEngine optional	$1329
R013 1010	**PrecisionColor Pro 24XK** (0430) 24-bit color, 1024 x 768, 16" and larger displays	$749
R013 1008	**PrecisionColor Pro 24X** (0429) 24-bit color, 640 x 480 to 1152 x 870, 13" to 21" displays	$1059

*For a limited time, FREE ColorComposer software is included with each Thunder Series card.
† After $750 Mail-in rebate from Radius. Offer valid until 6/30/95

Printers

NEC

PostScript

Energy Star

BEST BUY

NEC Silentwriter Model 640

- 6ppm Print Speed
- 300 dpi print resolution
- 35 True Type fonts
- 3MB RAM standard
- AppleTalk Interface
- Adobe PostScript Level 2 interpreter
- Limited TWO-Year Overnight Replacement Warranty (N027 1001)

$699

EPSON

Stylus COLOR Inkjet Printer E047 1012

1994 Computer Choice Quality Award

Now you can print in vivid color with clarity never before possible in a personal color printer. At 360 dpi resolution blacks are blacker and at 720/360 dpi the color output is the sharpest available.

- Incredible 720 dpi color printing, optimized with special coated paper
- 360 dpi black print resolution
- Prints up to 16 million colors
- Serial interface
- Includes Mac driver software and a TWO Year Warranty

$529

MACWORLD MW ★★★★

Graphic Cards — The Inexpensive Alternative for High-End Color Displays

EA REASEARCH

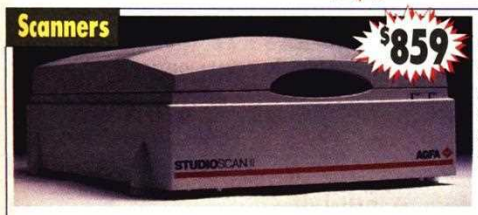
EAsycolor 24

The EAsycolor 24 graphics accelerator offers an unsurpassed combination of performance and price to creative professionals. In addition to 24-bit resolution up to 1600 x 1200, the EAsycolor 24 also offers Adobe Photoshop, CMYK-RGB, and QuickDraw Acceleration. Ideal for PowerMac owners, the EAsycolor 24 features state of the art RISC technology, up to 8MB VRAM, a 30 day money-back guarantee and a lifetime warranty at a very competitive price.

$1299

E103 1001	**EAsycolor 24 1152 Graphics Card** (EC1152)	$1299
E103 1002	**EAsycolor 24 1360 Graphics Card** (EC1360)	$1699
E103 1003	**EAsycolor 24 1600 Graphics Card** (EC1600)	$2299

Scanners



$859

AGFA StudioScan II

Agfa's StudioScan II, with its speed, flexibility, high-resolution capabilities, color accuracy, and OCR and other bundled software, brings productivity and image quality to novice and desktop users. While maintaining simplicity of operation, StudioScan II features productivity and output quality for demanding environments and applications.

AGFA Agfa

A055 1005	**AGFA StudioScan II**	$859
A055 1004	**AGFA StudioScan**	$679
A055 1007	**Agfa Transparancy Unit II**	$379
A055 1003	**Agfa Transparancy Unit**	$379

RasterOps CORPORATION — PaintBoard Prism GT bundled with Painter 3.0

Prism delivers top performance – real-world performance – for the way that people really work. Prism provides a balance of price, performance and functionality that are unmatched

- Accelerated 24-bit color at resolutions up to 1152 x 870
- Seven-inch size compatibility with compact and full-size NuBus Macintosh and Power Macintosh computers
- Support for displays up to 21 inches
- High refresh rates for flicker-free images
- Hardware-based 2X, 4X and 8X zoom and pan

R053 1029	**PaintBoard Prism GT bundled with Painter 3.0**	$959
R053 1028	**PaintBoard Prism**	$659

EPSON — Epson ES-1200 Pro Mac Scanning System

HIGH DETAIL 4800 DPI, 30-BIT COLOR SCANNING MADE AFFORDABLE.

- 600 x 1200 dpi scanning resolution (up to 4800 dpi via interpolation)
- Epson's TruePass scanning technology
- Scans over ONE BILLION colors
- 8.5" x 11.67" scanning area
- Built-in image processing features
- Increased image quality with 30-bit color scanning

2 Year Warranty

MACWORLD Editors' Choice 1994 Award Winner

$1269

E045 1003	**Epson ES-1200C Pro-MAC**	$1269
E045 1004	**Transparency Unit**	$655
E045 1008	**Automatic Document Feeder**	$465

Acceleration

IN STOCK!

$1489*

DAYSTAR DIGITAL

100 MHz Turbo 601

100MHz

Compatible with Mac IIci, IIsi, IIvx, and Performa 600

The Turbo 601 provides the best of both worlds. The Turbo 601 allows you to run your current software up to twice as fast, and it lets your run powerPC accellerated applications at full PowerPC speed - from 7 to 11 times faster!

	DayStar 100 MHz Turbo 601 (Compatible with Mac IIci (D040 1048), IIsi (D040 1050), IIvx/vi/Performa 600 (D040 1052))	$1489*
	DayStar 100 MHz PowerPro 601 (D040 1043) (Compatible with Quadra 900/950, 700 and other with Quadra style PDS)	$1489*
	DayStar 66 MHz Turbo 601 (Compatible with Mac IIci (D040 1039), IIsi (D040 1049), IIvx/vi/Performa 600 (D040 1051))	$989
	DayStar 66 MHz PowerCard 601 (D040 1040)	$635
	DayStar Turbo '040 (D040 1018)	$769

* After $200 Mail-in rebate from DayStar Digital.

Networking

Mac Con LC-10T III

(A120 1026)
Mac Con LC-10T III is a great low cost 10BaseT solution for LCs, Quadra 605s, 630s and many Performa models

$59

SPECIAL BUY! Limited Quantities Available

Lifetime Warranty

ASANTÉ

A120 1026	10BaseT, FPU socket (MciLC-10TIII)	$59
A120 1034	NetExtender - AAUI Hub with 4 RJ45 Ports, attached AAUI cable (NETEXT-FN-AAUI)	$75
A120 1032	Micro AsantéPrint, 10BT (AP10T)	$285
A120 1033	Micro AsantéPrint, Thk/Thn/10BT (AP3)	$309
A120 1010	10BaseT FriendlyNet Media Adapter (FN10TA)	$39.99
A120 1025	Mac II/Perf 600, NuBus, Thk/Thn (MCiNB-TN)	$115
A120 1023	Mac II/Perf 600, NuBus, Thk/10BT (MCiNB-10T)	$109
A120 1022	Mac LC/Q6xx/Clr Classic, Thn, FPU (MCiLC-TN)	$109
A120 1037	Mac LC/Q6xx/Clr Classic, 10BT, FPU (MCiLC-10T)	$89

PaperPort. VISIONEER

The fastest way to get paper into your Mac.

If it's on paper, it's PaperPort-able!

The first truly simple, super-small input device that converts your paper documents into electronic ones. With PaperPort's direct links to word processors, OCR software (included!), printers and fax modems, you can file, edit, annotate, print and send your documents directly to others. (V025 1002)

$359

MACWORLD Editors' Choice 1994 Award Winner

MACWORLD MW ★★★★★

Modems

GLOBAL VILLAGE COMMUNICATION

$229

Global Village TelePort Platinum

The Teleport Platinum fax/modem makes it easy to achieve the highest possible performance for both data adn fax communication. You'll save time and money when your use it to send and receive faxes, access your office network from home, transfer files, and connect to on-line services

G050 1016

G050 1016	**Global Village TelePort Platinum**	$229
G050 1006	**Global Village TelePort Gold II**	$109
G050 1017	**Global Village PowerPort Platinum PB 1XX**	$325
G050 1003	**Global Village PowerPort Mercury PB 1XX**	$325

SupraFAXModem

28.8 MC v.34

$225

S140 1006	**Supra Express 14.4 Plus**	$99
S140 1007	**SupraFAXModem 28.8 MC V. 34**	$225
S140 1008	**SupraFAXModem 28.8 PB** V.Fast Class for PowerBooks	$299

Supra Modems include a FIVE Year Warranty.

WARRANTIES: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. MONEY BACK GUARANTEE: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. RETURNS: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. ALL PRODUCT INFORMATION AND PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.

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"Direct Connections provided excellent technical support." **MacWorld July'95**
"Direct Connections' array offered the best performance per dollar of the drives tested." **Digital Video Oct. '94**
"Your next option is to locate...highly visible digital video suppliers like Direct Connections." **NEWMEDIA June '95**
""I tried...Direct Connections...configurations without encountering any problems" **Video Pro April '95**
"This array is the one to beat." **Ken Grey** Writer for WIRED, Computer User, MovieMaker, Computer Video, and Digital Video Magazine.
"Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." **MacWorld April '95**

HARD DRIVES

Seagate Elite 9 9gig. $2595.

240MB - 1200MB

BRAND/MODEL	CAPACITY	SIZE	ACCESS	RPM	INTERNAL	EXTERNAL
QUANTUM	514MB	2.5"	14MS		$ 425	
FUJITSU M2684S	530MB	3.5"	13MS	5400	$ 209	$ 269
NEC	730MB	3.5"	11MS	4090	$ 239	$ 299
CONNER CFP1080S	1.2GIG	3.5" LP	9MS	5400	$ 455	$ 515
Hitachi DK326c-10	1.0GIG	3.5"	9MS	6300	$ 535	$ 595
FUJITSU M1606S	1.2GIG	3.5" LP	10MS	5400	$ 415	$ 475
Seagate ST31230N	1.2GIG	3.5" LP	9MS	5400	$ 585	$ 645

1.7GIG - 9GIG

5 YEAR WARRANTY

BRAND/MODEL	CAPACITY	SIZE	ACCESS	RPM	INTERNAL	EXTERNAL
Seagate ST12450W	1.7GIG	3.5"	8MS	7200	$ 1495	$ 1555
Conner CFP2105S	2.1GIG	3.5" LP	9MS	5400	$ 835	$ 895
Conner CFP2107S	2.1GIG	3.5" LP	8MS	7200	$ 955	$ 1015
Quantum XP32150S	2.2GIG	3.5" LP	8.6MS	7200	$ 935	$ 995
Seagate Barracuda 2	2.5GIG	3.5" LP	8MS	7200	$ 1055	$ 1115
Seagate Barracuda 2W	2.5GIG	3.5" LP	8MS	7200	$ 1139	$ 1199
Seagate Barracuda 4	4.1GIG	3.5"	8MS	7200	$ 1499	$ 1559
Seagate ST15230N	4.3GIG	3.5"	9MS	5400	$ 1155	$ 1215
Conner CFP4207S	4.2GIG	3.5"	9MS	7200	$ 1295	$ 1355
Conner CFP4207wide	4.2GIG	3.5"	9MS	7200	$ 1395	$ 1455
Quantum XP34280S	4.3GIG	3.5"	8.6MS	7200	$ 1295	$ 1355
Seagate Elite 9	9.0GIG	5.25"	11MS	5400	$ 2595	$ 2695

CD RECORDERS

- Multimedia
- Archiving
- Distribution
- In-house publishing
- Back-up
- Image Data handling

- Unprecedented 4X speed
- Multisession
- Selectable Speeds
- Flexible Formats
  - Digital Audio
  - Interactive

Yamaha 4 speed recorder

$3095

"We recommend the Yamaha CDR100"
- MacWorld Mar. '95

Ricoh 2 Speed Recorder External Create music, interactive, and photos.
10 CDs for $99 Call for information on this drive!

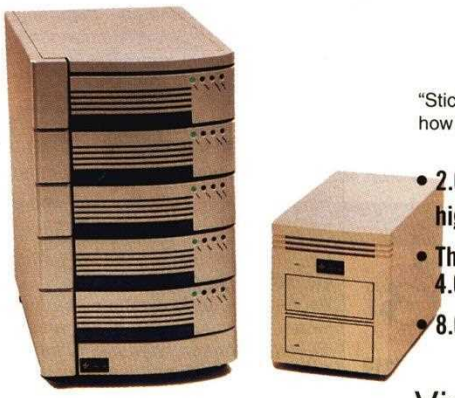
MEDIA

128MB Optical	$ 25	60M Tape	$ 10
230MB Optical	$ 29	90M Tape	$ 12
1.3GIG Optical	$ 85	112M Tape	$ 15
10 Blank CD's	$ 99	120M Tape	$ 20
88MB Squest	$ 48	200MB Syquest	$ 76
105MB Syquest	$ 54	270MB Syquest	$ 61

Our top rated RAID Systems include an Atto accelerator card, Remus RAID software, and all cabling.

RAID SYSTEMS
FROM 1 TO 84 GIG

"Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." MacWorld April '95



- **2.0 GIG RAID Level 0. Perfect for highspeed requirements.** $ 2199
- **This Array is the one to beat!! 4.0 GIG Wide Raid** $ 3399
- **8.0 GIG Fast and Wide Raid** $ 3999

Atto Silicon Express IV $835 accelerator card

VideoVision Studio $ 3649
Full screen and full motion recording and playback with JPEG hardware compression and decompression. radius

OPTICAL DRIVES

The New Sony 1.3GB half-height has 4MB of Cache and 3600rpm making this the fastest Optical drive in the market today! Call for comparisons against the competition.

$1949

1 YEAR WARRANTY

ALL OPTICAL DRIVES INCLUDE CARTRIDGE, CABLING, AND SOFTWARE.

CAPACITY	MODEL	EXTERNAL
230MB	Fujitsu	$ 575
1.3GB	NEC	$ 1599
1.3GB	Sony 4MB cache	$ 1949
1.3GB	Ricoh Turbo	$ 2175
Sony's latest technology → 26GB	Sony Jukebox	$ 6395

TAPE BACK-UP

2 YEAR WARRANTY

We are the tape-backup Experts

With 2.5mb/sec sustained transfer, the DLT2000 is perfect for digital video or pre-press with large data files.

$3675

All enclosures include one tape cartridge, cabling, and Retrospect software.

CAPACITY	MODEL	MEDIA	INTERNAL	EXTERNAL
1.3-2GIG	DC DAT	4MM	$ 709	$ 769
1.3-4GIG	DC DOUBLE DAT	4MM	$ 839	$ 899
4.0-8GIG	Sony 5000 DDS-2	4MM	$ 939	$ 999
7.0-14GIG	Exabyte 8505XL	8MM	$ 2135	$ 2195
-32GIG	Conner Autoloader	4MM		$ 2475
-40GIG	DLT4000	1/2"		$ 4999
-50GIG	Exabyte-10i	8MM		$ 2895
-140GIG	Exabyte-10h Library	8MM		$ 4999

DIRECT CONNECTIONS 7668 Executive Drive Eden Prairie, MN 55344 Gov't, Corp, and Univ. P.O's accepted. 30 day money back does not apply towards monitors or media.

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- No surcharge on credit cards
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- Your choice of a system cable or daisy chain cable with each drive purchase
- Corporate & Government PO's welcomed

CD ROM Drives

Chinon CDA525 — 135/195
280ms access time, 300Kb/sec transfer rate,256K,1 Year Warranty

SONY CDU55 — 235/275
280ms access time, 300Kb/sec transfer rate

NEC 2VMac — 205/245
320ms access time, 300Kb/sec transfer rate, 1 Year Warranty

NEC 3Xp — na/398
240ms access time, 500Kb/sec transfer rate, 1 Year Warranty

Toshiba QuadSpeed — 340/380
120ms access time, 600Kb/sec transfer rate, 256K,1 Year Warranty

NEC 4Xe — 445/485
220ms access time, 600Kb/sec transfer rate,256K,1 Year Warranty

Plextor 4Plex — 385/425
235ms access time, 600Kb/sec transfer rate, 256K,1 Year Warranty

Plextor 6Plex — 555/615
235ms access time, 600Kb/sec transfer rate, 256K,1 Year Warranty

Kingston TECHNOLOGY CORPORATION

Removable Drive Carriers

- Provides ability to easily remove and transport data
- Ideal for disk array environments
- Compatible with single ended, narrow differential, or fast & wide SCSI disk drives
- SCSI ID select number is clearly displayed on front panel of the receiving frame
- Key locked to prevent unauthorized or untimley removal of the drive carrier
- 5 year warranty

"Kingston Data Silo's are ideal for enclosing 5.25" and 3.5" storage devices, including disks, tapes, DATs or optical drives for external SCSI expansion". Kingston Technology Corp.1994

Digital Linear Tape Drives

Quantum DLT

Model	Capacity	Trans.Rate	Media	Ext.
DLT2000	20 GB	2.5MB/sec.	DLT20	$3995
DLT4000	40 GB	3.0MB/sec.	DLT40	$Call!

1 free cartridge with each DLT purchase

These drives are ideal for AV and network backup due to their advanced linear recording technology and a highly accurate tape guide system . DLT allows you to backup 150 to 180 MB per minute. DLT is your high capacity high performance backup solution.

Optical Drives

	Capacity		Access	Warranty	Ext.
Hewlett Packard	1.3 GB	1716T	23.5ms	1 Year	2295
MaxOptics	1.3 GB	Tahitti III	18ms	1Year	2395
Fujitsu	230 MB	M2512	30ms	1Year	575

1 free cartridge with each drive purchase

Hard Drive Cabinets

Zero Footprint 10.75" x 9.75" x 2" $75
MicroCab 8.5" x 6.75" x 2" $85
Full Height 9.75" x 9.5" x 4.5" $135
Multi Bay Cabinets ..... $CALL
Two, four, six, and eight bay cabinets available. All cabinets come with a 25-50 pin Mac system cable and a power cable. 1 year warranty on all cabinets.

Scanners

Nikon	Scantouch	$1299
	Transparency Adapter	$599
	Coolscan	$1499
UMAX	UC630/1260	$675/1240
	Vista S6	$760
	Powerlook	$3250

All prices are subject to change without notice. Returned products are subject to a restocking fee. International customers pay all shipping charges. All shipping charges are non-refundable. To return merchandise call for an RMA number. All RMAs must be returned within 10 business days of issuance. Customers are responsible for all returned product shipping charges.

VISA MasterCard

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8:00am-7:00pm (CST)

NEW Quantum Quantum Quantum

	Capacity	Seek	RPM	Cache	Warranty	Int.	Ext.
LPS Series	170 MB	14 ms	3600	128K	2 Year	135	195
Lightning	365 MB	11 ms	4500	128K	2 Year	155	215
Trailblazer	420 MB	14 ms	4500	128K	3 Year	185	245
DSP3053	535 MB	9 ms	5400	512K	2 Year	225	285
Maverick	540 MB	14 ms	3600	128K	2 Year	190	250
Fireball	540 MB	11 ms	5400	128K	3 Year	195	255
Lightning	730 MB	11 ms	5400	128K	2 Year	255	315
Trailblazer	850 MB	14 ms	4500	128K	3 Year	275	335
Fireball	1080 MB	11 ms	4500	128K	3 Year	395	455
Empire	2100 MB	9.5 ms	5400	512K	5 Year	890	950
Capella	2.0 GB	8.5ms	5400	1024K	5 Year	795	855
Atlas Series	2.0 GB	9ms	7200	1024K	5 Year	925	985
Grand Prix	4200 MB	8.6 ms	7200	512K	5 Year	1095	1155
Atlas Series	4.3 GB	9ms	7200	2048K	5 Year	1495	1555

	Capacity	Size	Seek	Cache	Warranty	Int.	Ext.
Daytona	256 MB	Powerbook 2..5"	17 ms	128K	1 Year	215	275
Daytona	341 MB	Powerbook 2..5"	17 ms	128K	1 Year	295	355
Daytona	514 MB	Powerbook 2..5"	17 ms	128K	1 Year	385	445

New Products MICROPOLIS MICROPOLIS New Pricing!!

	Capacity	Access	RPM	Cache	Warranty	Int.	Ext.
M4221	2.1 GB	8.5 ms	7200	512K	5 Year	895	955
M4221Wide	2.1 GB	8.5 ms	7200	512K	5 Year	1080	1140
M1936	3.6 GB	11 ms	5400	512K	5 Year	1195	1295
M3243	4.3 GB	8.5 ms	7200	512K	5 Year	1385	1445
M3243Wide	4.3 GB	8.5 ms	7200	512K	5 Year	1475	1535
M1991	9.0 GB	12 ms	5400	512K	5 Year	2195	2295
M1991Wide	9.0 GB	12 ms	5400	512K	5 Year	2295	2395

Direct to Disk Recording AV Drives- BEST for Music and Video Storage

M4221AV	2.1 GB	8.5 ms	7200	512K	5 Year	995	1055
M1936AV	3.6 GB	11 ms	5400	512K	5 Year	1245	1345
M3243AV	4.3 GB	8.5 ms	7200	512K	5 Year	1485	1545
M1991AV	9.0 GB	12 ms	5400	512K	5 Year	2325	2425
M4221WideAV	2.1 GB	8.5 ms	7200	512K	5 Year	1135	1195
M3243WideAV	4.3 GB	8.5 ms	7200	512K	5 Year	1595	1655
M1991WideAV	9.0 GB	12 ms	5400	512K	5 Year	2495	2595

NEW MICRODISK LT *3.5"Stackable Disk Subsystems, Super Capacity External Storage*

M2100	2.1 GB	8.9 ms	7200	512K	5 Year	Call for the most
M4200	4.3 GB	8.9 ms	7200	512K	5 Year	competitive pricing

SPRING SPECIALS

Quantum 170MB ..... Int. $135 Ext. $195
3600RPM, 14ms seek, 128K cache, 2 year warranty

Quantum 365MB ..... Int. $155 Ext. $215
4500RPM, 11ms seek, 128K cache, 2 year warranty

Quantum535MB ..... Int. $225 Ext. $285
DSP3053, 5400RPM, 9ms seek, 512K cache, 2 year warranty

Quantum Trailblazer 850MB ..... Int. $275 Ext. $335
QTB850, 4500RPM, 14ms seek, 128K cache, 3 year warranty

Quantum Fireball 1.0GB ..... Int. $395 Ext. $455
QFB1080, 4500RPM, 11ms seek, 2 year warranty

Micropolis 2.0GB ..... Int. $895 Ext. $955
M4221,7200RPM, 9ms seek, 5 year warranty

Seagate Barracuda 4.0GB ..... Int. $1495 Ext. $1555
ST15150N, 7200RPM, 8ms seek, 5 year warranty

Seagate Seagate Seagate Seagate

	Capacity		Seek	RPM	Cache	Warranty	Int.	Ext.
Hawk 2LP	1.2 GB	ST31230N	9ms	5400	512K	5 Year	535	595
Hawk 4	4.2 GB	ST15230N	9ms	5400	512K	5 Year	1185	1245
Barracuda 2LP	2.5 GB	ST32550N	8ms	7200	1024K	5 Year	1050	1110
Barracuda 4	4.2 GB	ST15150N	8ms	7200	1024K	5 Year	1495	1555
Barracuda 2Wide	2.5 GB	ST32550Wide	8ms	7200	1024K	5 Year	1125	1195
Barracuda 4Wide	4.2 GB	ST15150Wide	8ms	7200	1024K	5 Year	1590	1650
Elite 9	9.0 GB	ST410800N	11ms	5400	512K	5 Year	2595	2695

FUJITSU FUJITSU FUJITSU FUJITSU FUJITSU FUJITSU

	Capacity	Seek	RPM	Cache	Warranty	Int.	Ext.
M2684	530 MB	9ms	4500	256K	5 Year	205	265
M1606SA	1.2 GB	9ms	4500	512K	5 Year	495	555

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	Capacity	Access	RPM	Cache	Warranty	Int.	Ext.
C3724SE	1.2 GB	9.5 ms	5400	512K	5 Year	550	610
C2490SE	2.4 GB	8.5 ms	6300	512K	5 Year	1095	1155

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4-10 GB	1533A	4mm	1235	1295
20-50 GB	1553A Auto Tape Loader		3495	3595

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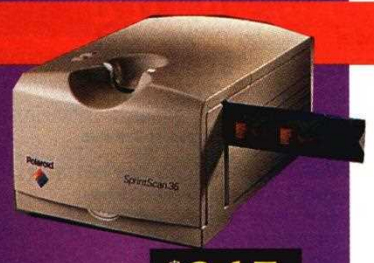

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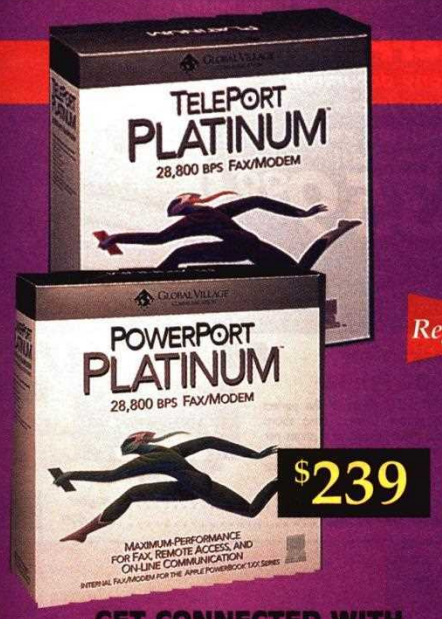

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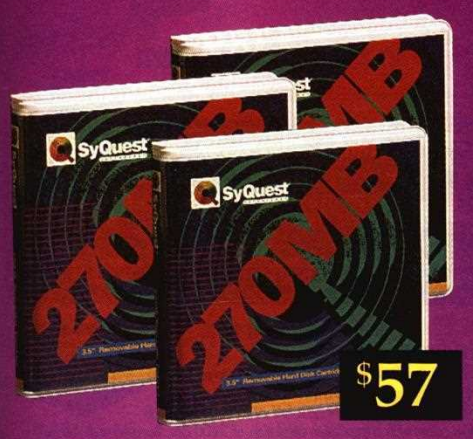

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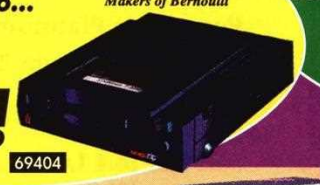

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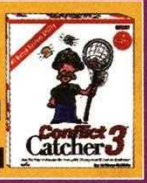

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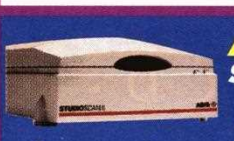

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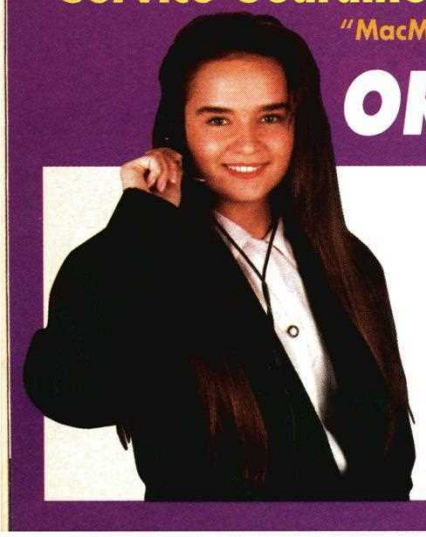

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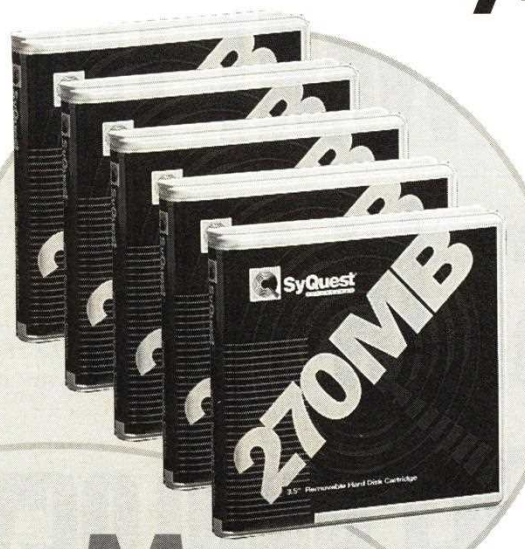

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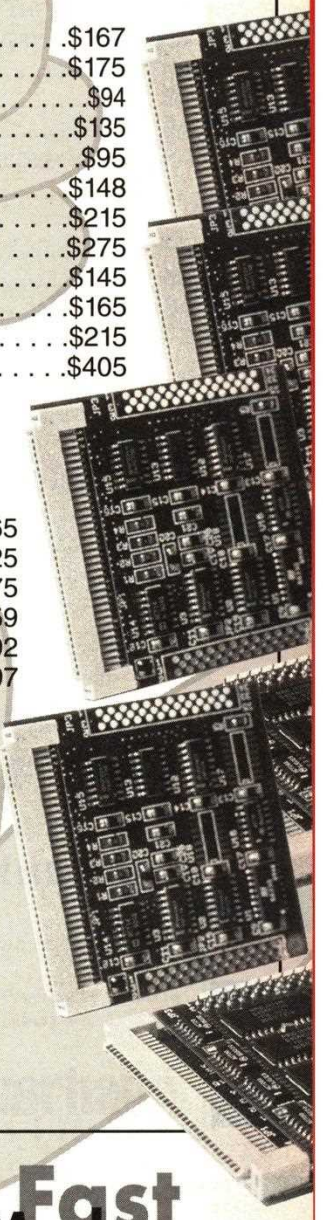

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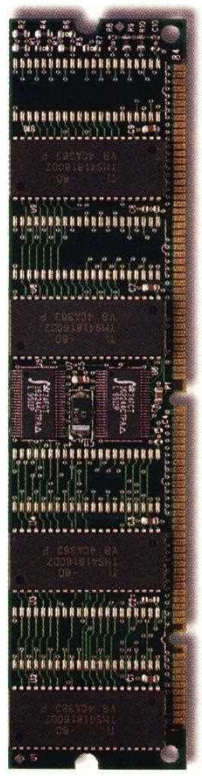

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Boxlight Corporation 76
Chip Merchant 67
Compu-D 71
Computer Chow 80
Computer Design & Graphics 72
Computer Guys 78
Computer Town 72
Comwest International 80
Conde Systems 80
CRA Systems, Inc. 81
Cutting Edge 79
D Tech 80
Data Computer Center 78
Data Memory Systems 78
Datatech Remarketing 81
Diamond Computer Resources 78
Digital Axis International 79
Digital Publishing 80
Dvc/Digital Video Concepts 66
Ge Rental/Lease 81
Griffin Communications Co. 80
Hawke Business Systems 81
ICN 79
Innovative Micro Products 78
International Datawares, Inc. 80
Japan Digital Laboratory 73
Kahlon, Inc. 80
L2 78
LA Computer Center 71
Mac Attack 71
Mac Base USA 70,72
Mac Brokers 79
Mac Net 78
Mac Professional 71
Mac Rentals 80
Mac Sale International 77
Mac Solutions 78
Macadapt 80
Mace Group/MacAlly 66
Macintosh Accessory Center 80
Macstorm International 78
Maxed Systems 81
Media Store 80
Megastor 73
Memory Direct 70
Memory Merchants 80
Micro Outlet 79
Micron Computer 70
Microtech International, Inc. 66
MPD 78
9 TO 5 Computer Supply 79
New Concepts Development 70
Nomus, Inc. 74
Other World Computing 72
Peripheral Outlet 67
Pre-Owned Electronics 80
Promax Technology 74
Rapidata 80
Reply Corporation 74
Sayett Technology 75
Shreve Systems 82,83
Simm Saver Technologies 78
Sonnet Technologies 66
Super Micro 75
Syzygy Electronics 69
Tahoe Peripherals 68
TD Curran 74
Tenon Intersystems 71
TPS Electronics 66
Trinity Works 78
United Computer Exchange 81
Westwood Computers 72
Xceed technology 66

Software
(Includes Bar Coding, Business Management, CAD-CAM, Communications/Networking, Desktop Publishing, Education, Finance, General, Graphics, Multimedia)

APT Communcations, Inc. 76
Cypress Research 65
Intercon Systems, Corp 65
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Tellan Software 81
VicomTechnology 81

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(Includes Digital Output Services, General, Graphics, Programming/Consulting, Rental/Leasing, Repair/Recovery Services, Toner Recharging, Training)

Drivesavers 84
DT&T Macintosh Services 84
800WeFixMacs 84
Imagers 84
Isomedia 84
Lazarus Data Recovery 84
Mac Wizard, U.S.A., The 84
On Track Data Recovery 84
Quay II Multimedia 84
Soft Solutions 84
3e Corporation 84
Total Recall Data Recovery 84

Accessories
Battery Tech, Inc. 65
Microstore 84
Moustrak 84
VST Power Systems, Inc. 73

CD ROM
Catalogic Corporation 84

Career Opportunities
Diamond Multimedia 85
Holiday Inn WorldWide 85
Iomega 85
Jager, Dipaola, & Kemp 85

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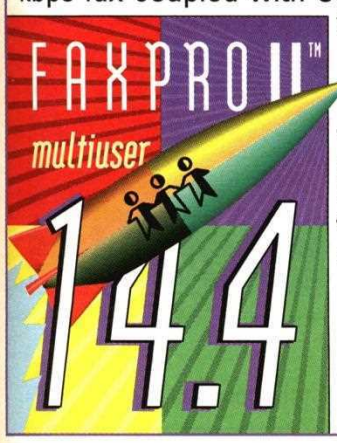

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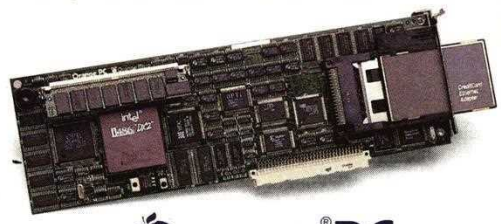

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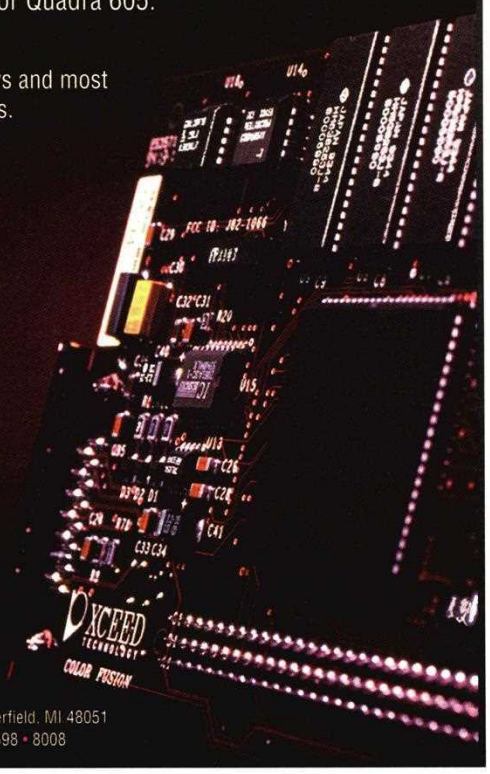

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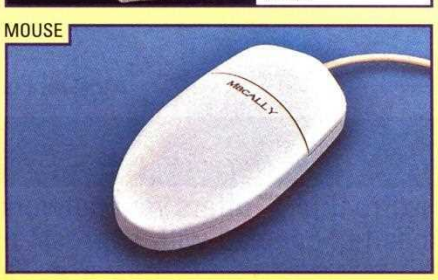

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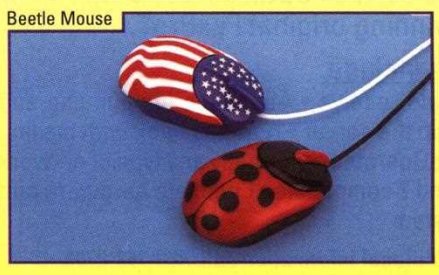

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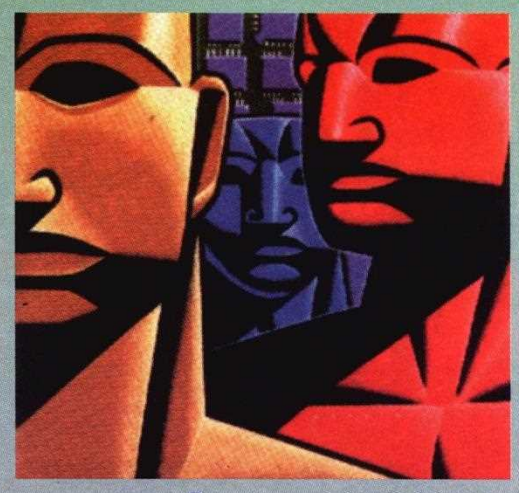

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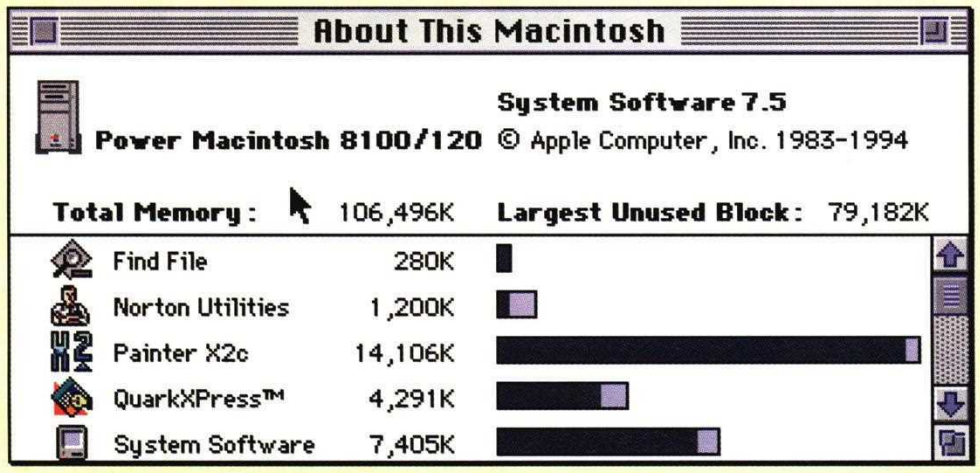

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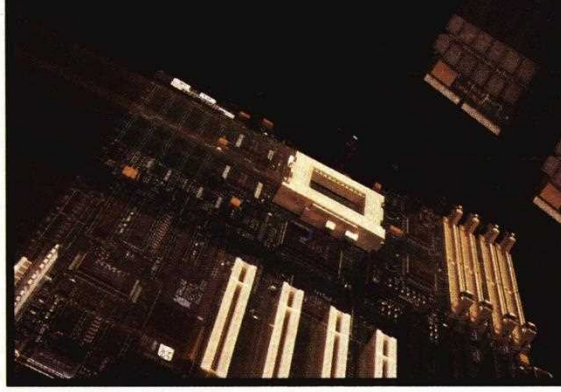

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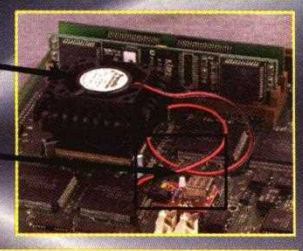

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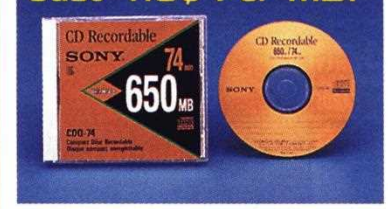

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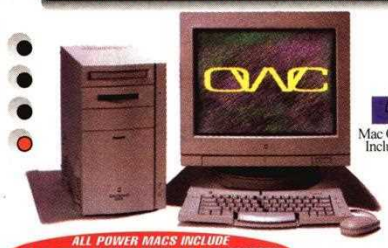

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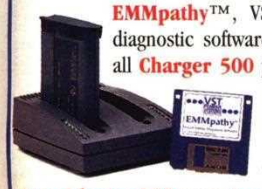

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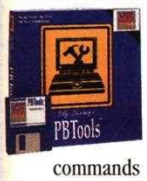

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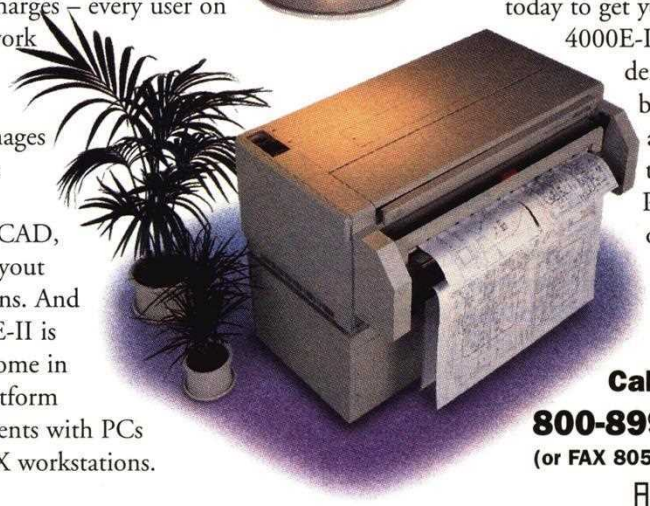

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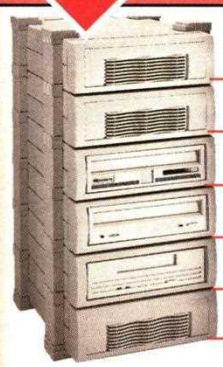

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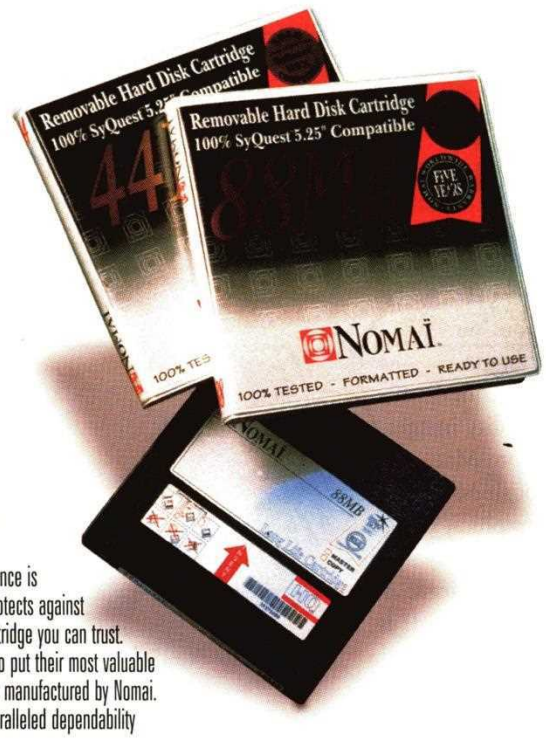

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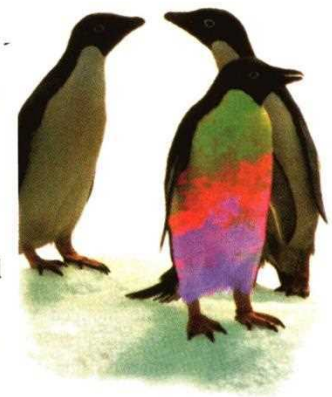

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Radius 21	21in, .31mm, 1600x1200	$2069	

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Video Cards	Resolution	Price	
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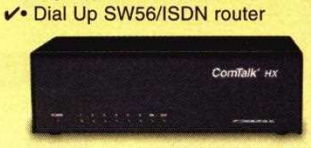

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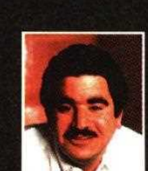

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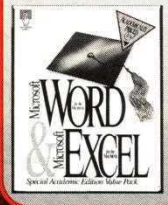

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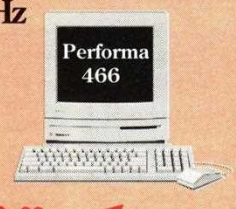

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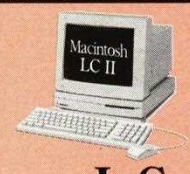

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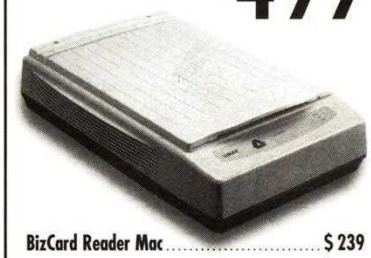

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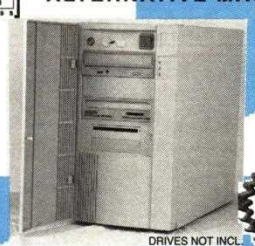

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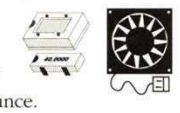

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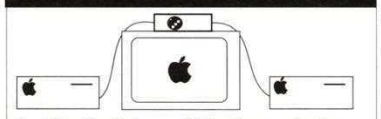

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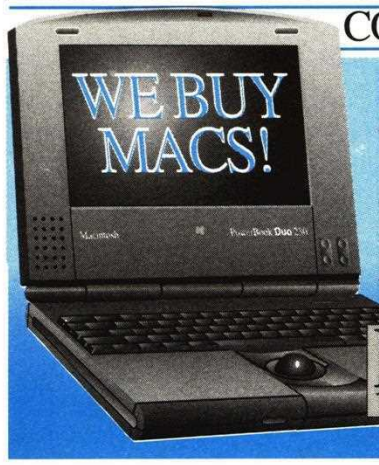

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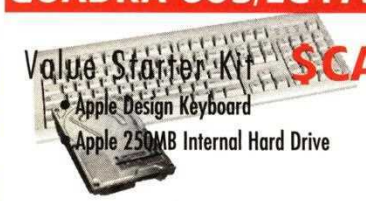

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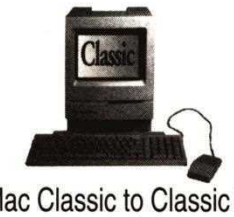

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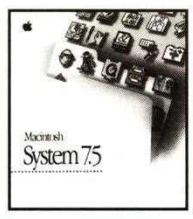

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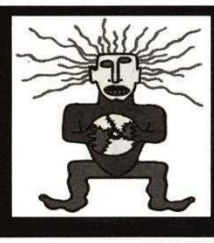

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9500

From Page 1

for the 604 processor (see MacWEEK, May 8, Page 14). Gary Bringhurst, chief technical officer at Strata Inc. of St. George, Utah, said in tests done with a 9500, the 604-optimized StudioPro rendered an object three times as fast as the previous Power Mac-native version. The 604-savvy version of the 3-D application is slated to ship in August.

Processor-specific optimization only may be part of the picture, said storage vendors, the longtime recipients of speed-related complaints. Because of limitations in NuBus, many applications employ work-arounds that may prevent optimum performance with PCI models.

"When our [prototype] array got up to 42 Mbytes per second, Photoshop didn't get any faster than 32 Mbytes per second," said Eric Herzog, vice president of marketing with FWB Inc. of Menlo Park, Calif., adding that software I/O appeared to be the bottleneck. In theory, he said, future versions of applications could be rewritten to accommodate higher disk speeds. "We didn't make a 42-Mbyte-per-second product because we wouldn't be able to sell it."

Adobe Systems Inc. of Mountain View, Calif., said a forthcoming maintenance release of Photoshop will remove some 601-specific code but will not provide 604 optimization or address data-alignment issues. It had no comment on 42-Mbyte performance limits.

Chuck Weger, president at Elara Systems Inc. of Fairfax, Va., tested the 9500 for an Apple-commissioned report. "The difference between the raw I/O speed [of] these machines and the actual speeds with applications is significant," he said. "It will be up to the imagination of software writers as to what you can do with really fast I/O."

Some applications may also need updating to take advantage of other new technologies in the 9500, such as Apple's Descriptor Based Direct Memory Access, which offloads many tasks without intervention from the main processor. Developers said some applications are written to put processes on hold during I/O. "The PCI Macs can do far more than what's available with today's software," one source said.

Digital video applications can also benefit from the high data transfer rates now available from bundles of arrays and PCI cards. Analysts said video applications and accelerators should support varying levels of compression, instead of assuming an I/O bottleneck still exists.

Neil McManus, executive editor at Digital Media, a Seybold Report, in San Francisco, said, "With improvements from state-of-the-art Macs, [video products] can ease up on compression and move closer to true broadcast-quality video." □

PC Expo

From Page 1

Corp. Senior Vice President John Thompson revealed that 25 vendors had just signed on to the OpenDoc consortium (see story, Page 4). The three companies co-hosted a large warehouselike booth on the first floor of the Jacob Javits conference center, which housed a variety of OpenDoc parts working together.

Elsewhere on the show floor, Apple's own booth dwarfed last year's postage stamp, occupying five times the space. Appropriately, it was targeted at Windows buyers. For example, the entire back wall of the booth consisted of a glass case crammed with Power Mac applications, underscoring the platform's depth and breadth. And one corner of the crowded booth demonstrated business solutions of interest to Windows buyers. Heavy foot traffic also tramped around Apple's new products, especially the cross-platform Color LaserWriter 12/600 PS.

Apple was a co-sponsor of the PowerPC pavilion, which presented a lower profile than last year's extravaganza; while Apple's marketing efforts have increased, Motorola Inc.'s appear to have diminished.

Apple also hosted a large separate booth featuring PCI vendors' new Mac products. Diamond Multimedia Systems Inc. and ATI Technologies Inc., which demonstrated its first PCI products for the platform, both said they were getting a lot of attention.

Yet another Apple area, the Mac Enterprise Awards booth co-sponsored with MacIS and Computerworld, highlighted the Mac's corporate success stories.

Macs also co-starred at third-party booths scattered throughout the sprawling conference center. Fractal Design Corp. showed two machines running Poser, its latest Mac-only product. A Fractal employee said it was getting lots of attention from passers-by, most of whom could not wait until Fractal added Poser to its cross-platform product list.

Lotus Development Corp. featured Macs prominently in its booth, demonstrating both Notes and cc:Mail. SyQuest Technology Inc. stored only one Mac in its booth, and its mouse sat ignominiously on a Windows 95 mouse pad. SAS Institute Inc. drew a lot of interest in the recently released Mac version of its statistical package.

One interesting twist: Iomega Corp.'s crowded booth included demonstrations of its Zip and Jaz drives running on Power Computing Corp.'s Mac clones. One showed the Zip as an internal mechanism, which a Power Computing representative said would be available in 30 days. □

IBM

From Page 1

top and laptop models that represent IBM's first stab at PowerPC-based machines. The units will run native versions of Windows NT, now shipping, and OS/2, which is slated for a September release. Instead, reporters deluged Thoman with questions about IBM's licensing plans for the Mac OS, but the IBM executive was sketchy on details.

Lamar Potts, who spearheads Apple's worldwide licensing efforts, said an agreement would be mutually beneficial for both companies. He said Apple would gain access to business markets, while users of IBM PowerPC-based machines would be able to choose from more than 750 applications now available for Power Macs.

More important, analysts said, IBM's public commitment to the Mac OS gives Apple's licensing push much needed oomph. "Apple now has more pull with prospective clone partners," said Amy Wohl, editor of Trends-Letter of Narberth, Pa. "They can say, 'Look, we have IBM signed on. Why not join?' IBM has significantly more clout with vendors than [Apple's other clone partners] Radius Inc. and Power Computing [Corp.]."

The impending deal with IBM doesn't necessarily guarantee Apple the cachet that has eluded it in business markets, though. Even with an agreement, industry observers cautioned, nagging questions remain about how committed IBM — which has steadfastly touted its OS/2 operating system — is to the Mac OS.

"It's good for the Mac OS to gain backing from a significant player," said Philippe de Marcillac, PC analyst at Dataquest Inc. of San Jose, Calif. "But it remains to be seen if [IBM] will market it aggressively or just offer it to people."

Indeed, sources said IBM's announcement supporting the Mac OS came despite strong opposition from factions within the company who fear a licensing agreement with Apple will undermine OS/2 sales. "There has been, and continues to be, an OS struggle here," one IBM employee said.

Wohl offered an even more chilling reminder, based on the outcome of a licensing agreement IBM signed with NeXT Computer Inc. several years ago. "I don't remember a single machine running NeXTstep that was shipped by IBM," she said.

Wohl quickly added, however, that she feels IBM will be significantly more supportive of Apple. "This is a different scenario," she said. "The overall PowerPC plan is to make it a multiplatform machine. Besides, IBM realizes that all hardware companies should be OS-neutral." □

David Morgenstern contributed to this report.

Third parties stack deck with PCI cards

Accelerated video leading the pack

By James Staten

Seven more vendors threw their hats into the PCI ring last week as the Power Mac 9500 debuted.

▶ **Diamond Multimedia Systems Inc.** of San Jose, Calif., shipped the Javelin Video 3240XL and 3400XL, priced at $399 and $569, respectively. The two PCI cards provide support for 24-bit video at resolutions up to 1,152 by 870 pixels and 30-frame-per-second video playback at resolutions up to 1,280 by 1,024 pixels, the company said. The 3240XL comes with 2 Mbytes of video RAM, while the 3400XL comes with 4 Mbytes.

▶ **miro Computer Products Inc.** of Palo Alto, Calif., announced five PCI boards, including three accelerated display cards and two multimedia products. The miroChroma 1024GT, 1152GT and 1600GT all will be able to display 24-bit images at maximum resolutions denoted by their product names.

The miroChroma 1280PV video will combine graphics acceleration with video-playback and video-capture capabilities. It will have a maximum resolution of 1,600 by 1,200 pixels for eight-bit color, and 1,280 by 1,024 in 24-bit mode, and will be able to display and capture VHS and Super VHS signals. The board will be able to play QuickTime movies at 30 fps in a maximum display size of 1,280 by 1,024 pixels and store 24-bit video stills on disk.

The company also announced the miroMotion DC20, a Super VHS-quality digital video editing subsystem that will allow real-time capture and playback of video sequences through an on-board Motion-JPEG compressor-decompressor.

The cards are expected to ship in the third quarter; pricing has not been determined.

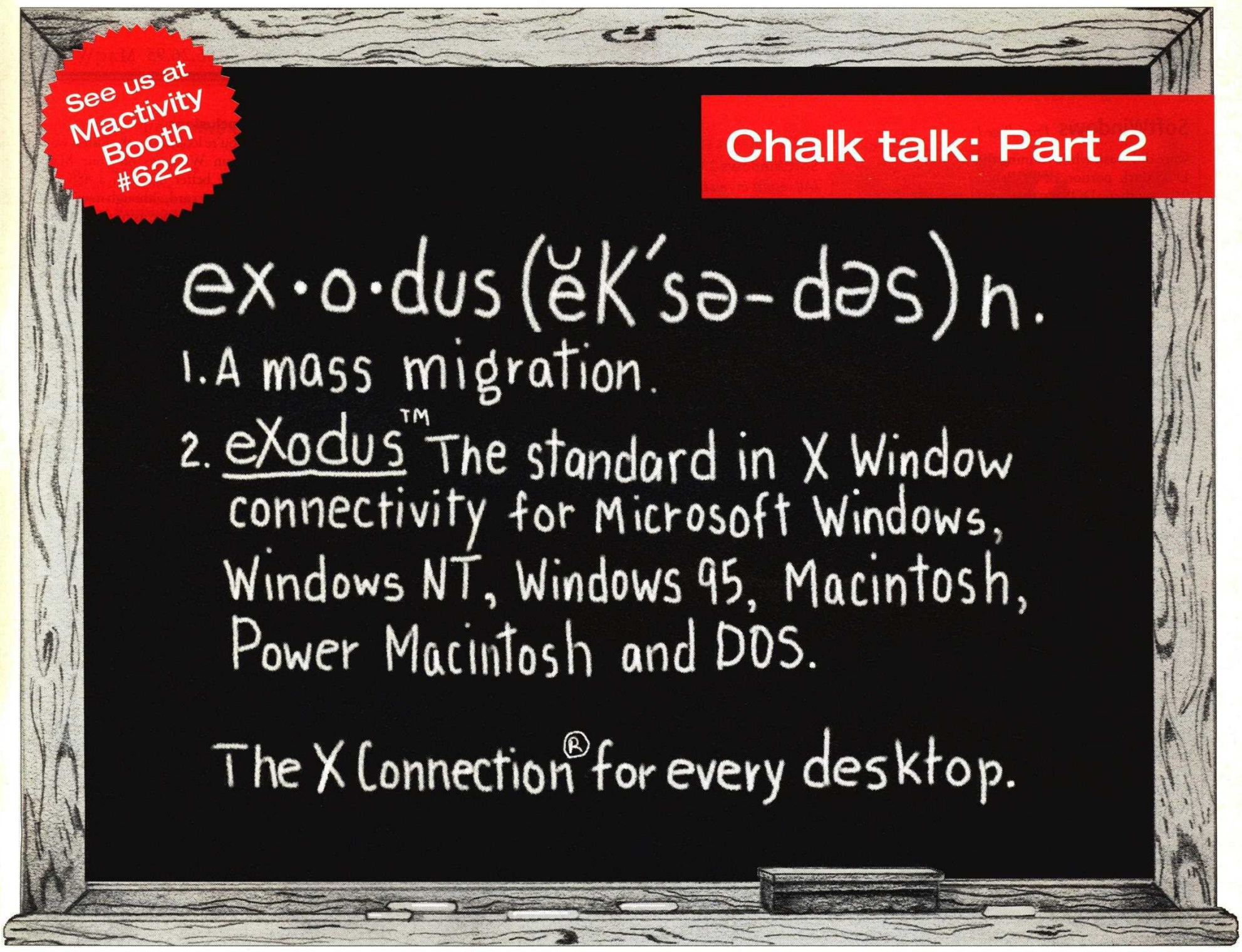
▶ **Intelligent Resources Integrated Systems** of Arlington Heights, Ill., announced the Intelligent Media Explorer, a digital video interface card for connection to editing equipment, such as switchers, VCRs, digital disk recorders and electronic paint systems. The card will use an on-board bus system called MediaBahn to communicate with other PCI-based digital video cards, such as forthcoming digital effect processors, Ultimatte processors, and storage and communications cards, the company said. Availability and pricing are to be determined.

▶ **YARC Systems Corp.** of Newbury Park, Calif., announced a trio of PCI cards. YARC-RIP, to ship next month for $11,995, is a RIP that transforms the Canon Color Laser Copier into a color printer. The card uses its own PowerPC 601 RISC chip in addition to the Macintosh's processor. Screamer, expected to ship in August for less than $1,000, will accelerate QuickDraw 3D applications. Hydra, currently available as a NuBus card, uses one or two PowerPC 601 chips to deliver multiprocessing for some 3-D applications. Starting at $2,995, it will ship next month.

▶ **Others.** Menlo Park, Calif.-based Digidesign said it plans to offer in early 1996 PCI versions of its audio recording systems, AudioMedia II, Session 8 and ProTools. Digital Communications Associates Inc. of Alpharetta, Ga., plans to develop a coaxial adapter card, and ICG North America will ship a PostScript Level 2 RIP for its Titan 582 B1-size Combination Platesetter. □

See us at Mactivity Booth #622

Chalk talk: Part 2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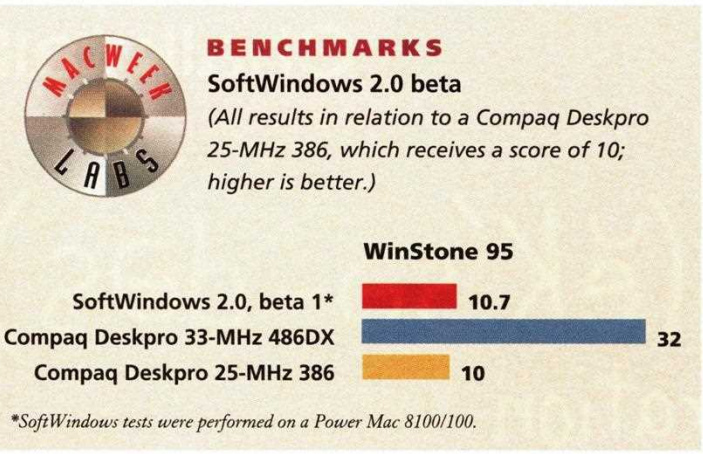
SoftWindows *From Page 1*

ware did crash while running the DOSMark portion of PCBench 9.0, a synthetic DOS test that measures CPU, video and disk speed. Insignia blamed this on unfinished code in the beta.

Speedwise, the SoftWindows 2 beta was a bit slower than SoftWindows 1.5, running slightly faster than a 25-MHz Compaq Deskpro 386 (the base system for the WinStone benchmark). Insignia said the shipping version of SoftWindows 2 will be at least 30 percent faster than this beta and should perform in the same range as Version 1. However, software that uses 386 Enhanced Mode will be somewhat slower than software that does not. Running programs at the speed of a 25-MHz 486 should be acceptable for most business software.

Although SoftWindows 2 is no Pentium, the fact that it runs as fast as it does is impressive because it has gone from emulating the 150,000-transistor 286 to the 1.2-million-transistor 486.

One thing SoftWindows 2 still does not emulate is a SoundBlaster card, so most DOS programs that require that hardware will not play audio. However, SoftWindows 2 does support the Windows Sound System, so Windows business and multimedia applications and some DOS software can play back and record sound by using the Mac's speakers and microphone. Sound input and output is controlled by the Mac's Sound control panel.


BENCHMARKS
SoftWindows 2.0 beta
(All results in relation to a Compaq Deskpro 25-MHz 386, which receives a score of 10; higher is better.)
WinStone 95
SoftWindows 2.0, beta 1*
10.7
Compaq Deskpro 33-MHz 486DX
32
Compaq Deskpro 25-MHz 386
10
*SoftWindows tests were performed on a Power Mac 8100/100.

Better networking

DOS and Windows networking has been greatly improved in SoftWindows 2, with support for TCP/IP, IPX, NetBEUI, Banyan Vines-IP and DECnet network protocols.

SoftWindows 2 can now run simultaneous Mac and PC TCP/IP sessions using the Mac's MacTCP driver. Similarly, you can run simultaneous Mac and PC IPX applications using MacIPX.

SoftWindows 2 comes with NetWare client software that can also run PC IPX sessions through Insignia's implementation of Open DataLink Interface (ODI). In addition, the new version comes with a Network Driver Interface Specification (NDIS)-to-ODI translator for Windows network applications that requires Microsoft's NDIS driver. This new capability to run networking programs on the emulated PC and on the Mac simultaneously is an important improvement that eliminates one of the more annoying restrictions of Version 1.

SoftWindows server

Through Apple events, Windows applications running in SoftWindows can also be reached over an AppleTalk network by other Macs not running SoftWindows.

Thus, a Mac running SoftWindows can be set up as a PC application server when program sharing is turned on in the Mac's Sharing Setup control panel. You can shield users from having to deal with Windows by creating a front end to a Windows application using Microsoft Excel, HyperCard, AppleScript or other Apple events-compatible Mac software. The big advantage of this is that it lets Mac users access PC applications — such as custom in-house databases — without requiring SoftWindows or a coprocessor card.

You can also create an AppleScript to perform basic DOS or Windows activities, since any DOS/Windows keystroke combination can be included in a script. Unfortunately, SoftWindows 2 is not AppleScript-recordable, which means you can't create a script by having AppleScript watch while you use the PC programs.

Users unfamiliar with Windows are also aided by SoftWindows 2's support for Apple Guide. In addition to the built-in information, corporate help desks can add custom guides to the Help menu.

Conclusions

If you're looking for the fastest way to run Windows on your Mac, you're better off with a 486 coprocessor card, although it will cost you at least twice as much as SoftWindows 2. And with faster Macs, such as those with the new 604 processor, SoftWindows should run faster than it did in our tests.

Although SoftWindows 2 won't help Mac users play DOS games, it will make it easier to use a Mac in a cross-platform business environment. With true 486 emulation, SoftWindows 2 gives Mac users a way to run custom in-house software, such as programs created with Microsoft Visual Basic, and lets them use existing PC networks and servers without modification. New volume site-licensing will make SoftWindows more attractive to corporate customers, as it allows you to install the software on more Macs than the number of concurrent users.

Insignia Solutions Inc. of Mountain View, Calif., can be reached at (415) 694-7600 or (800) 848-7677; fax (415) 964-5434. □

Performas *From Page 1*

be priced from $2,399 to $2,999 and will be available with 8 or 16 Mbytes of RAM, a 1-Gbyte hard drive, and the new AppleCD 600 quadruple-speed CD-ROM drive.

Currently available to education buyers, the LC 5200 will finally reach mainstream buyers. Under the Performa moniker, it will gain a quadruple-speed CD-ROM drive and come with 8 Mbytes of RAM and either an 800-Mbyte or 1-Gbyte hard drive. The all-in-one machine features a 15-inch multiple-resolution monitor capable of displaying images at a maximum resolution of 800 by 600 pixels in 16-bit mode (see MacWEEK, Feb. 27, Page 1). It will be priced from $1,999 to $2,299, according to sources.

The company will also release a new 6100/60-based model, the Performa 6116CD. Priced from $1,899 to $1,949, it will include 8 Mbytes of RAM, a 700-Mbyte hard drive and the double-speed AppleCD 300 CD-ROM drive.

Also debuting will be what could be the last of the Quadra 630-based consumer Macs, the Performa 631 and 631CD. These models, to be priced at $1,599 and $1,649, respectively, will each include 8 Mbytes of RAM and a 500-Mbyte drive. The Performa 631CD will include the AppleCD 300 CD-ROM drive, sources said.

When told about the lineup by MacWEEK, dealers said that it is essential for Apple to get some quadruple-speed CD-ROM drives into the consumer channel now.

"About 30 to 40 percent of all CD-ROM-equipped [Intel-standard PCs] we sell have quad-speed drives in them, and that's quickly approaching 50 percent," said Mike Balazsy, retail manager for Madison Books & Computers Inc. of Madison, Ala.

"Around $2,000 is the right price point for [Apple's] PowerPC machines," he added. "You look at a comparable Pentium machine and the Mac is actually cheaper."

Apple declined to comment. □

Notes Express free with Macs

By James Staten

All new corporate Power Mac owners can now become Lotus Notes users thanks to a marketing agreement between Apple and Lotus Development Corp.

As of June 19, buyers of any new Power Macintosh model can receive a free CD-ROM containing Notes Express Release 3.31 for Mac OS, the entry-level client to the Cambridge, Mass., company's cross-platform groupware system.

The version contained on the CD-ROM provides e-mail and a searchable reference document library, a news database, a shared discussion database, a company phone book, and customer and service request-tracking systems.

Five reference databases are also included: April 1995 AppleFacts, How to Reach Apple, Apple Solution Professionals Network, Macintosh Consultants Network and the Lotus Business Partnership Catalog.

The software requires a $275 Notes Release 3.3 server, which runs on Windows; Windows NT; Novell NetWare; OS/2 Warp; and several Unix platforms, including AIX.

For additional information, call (800) 346-1305. □

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General Magic	13.50	-2.70
Macromedia	43.50	9.43
Microsoft	91.88	8.25
Novell	20.25	1.89
Oracle	40.13	7.36
Saber	8.88	0.00
Symantec	29.50	10.80
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Conner	12.25	-2.97
Iomega	21.88	4.17
Maxtor	6.38	2.00
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SyQuest	15.38	12.84

	06.22.95 CLOSE	WEEKLY % CHANGE
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IBM	97.75	5.11
Intel	65.38	13.57
Motorola	66.88	10.54
SGI	41.88	6.35
NASDAQ	940.09	4.14

**The MacWEEK Composite is calculated by adding the stock prices of the following companies: Apple, Adobe, Asanté, Caere, CE Software, General Magic, Global Village, Macromedia, Radius, RasterOps, Shiva and SyQuest. Source: Nordby International Inc.*

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REVIEWS IN THE WORKS

- Now Software's Now Up-to-Date, Now Contact 3.5
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Products in this issue

COMPUTER-AIDED DESIGN

BAGH New Architrion VI 6 14

COMPUTERS & SYSTEM SOFTWARE

Apple Modern Memory Manager 46
Apple Performa 6200, LC 5200, 6116CD, 631, 631CD 1
Apple Power Mac 9500 1
Apple Thread Manager 2.1, System 7.5.1 46
IBM PowerSeries 1
Insignia SoftWindows 2.0 1

DATABASES & DATABASE TOOLS

ACI US 4D Server 1.2, 4D SDK 22
Blyth TrueAccess 2.0 22
Breitschwerdt macControl 22
Dolphin nuBase Pro 2.0 22
EveryWare Butler 1.5 22, 24
Foresight CalendarSet 2.0 22

GRAPHICS HARDWARE

Dicomed Big Shot 14
Integrated Micro Twin Turbo-128M 6
YARC Screamer, Hydra 86

GRAPHICS SOFTWARE

Adobe Illustrator 35
Adobe Photoshop 1
DayStar PhotoMatic 2.0 35
HSC KPT Vector Effects 35
Macromedia FreeHand 35

GROUPWARE

Crosswise Face to Face 45
Lotus Notes Express Release 3.31 for Mac OS 88
Lotus Notes for Macintosh 45
Milum Office Tracker Pro 45
Novell GroupWise 4.1 Mac Client 45
Shana Informed Foundation 45

INTEGRATED PACKAGES

Claris ClarisWorks 4.0 6

INTERNET

Apple eWorld 1.1 20
Apple Internet Server Solution 24
Bare Bones BBEdit 24
Lindsay Davies HTML Tools 24
Delphic AL*L Internet Server 24
Farallon Netopia Internet router 90
InterCon InterServer, InterServer Publisher, Mail Server, Administration Server, Security Server 24
InterCon WebShark 20
Maxum NetCloak, NetForms 24
Netscape Navigator 24
NetWings NetWings 24
shareware HTML Web Weaver 2.5.1 24
shareware TR-WWW 24
SoftQuad HoTMetaL Pro 24
StarNine WebStar, MacHTTP 24

MONITORS & DISPLAY CARDS

Mitsubishi MegaView Pro 37, 42 6
Panasonic PanaMedia 15, 17 6
ViewSonic ViewSonic 17PS 6
Willow Six MonitorRightProof 6

MULTIMEDIA

Diamond Multimedia Javelin Video 3240XL, 3400XL 86
Digidesign AudioMedia II, Session 8, ProTools 86
Intelligent Resources Intelligent Media Explorer 86
miro miroCHROMA 1280PV, miroMOTION DC20 86

NETWORKS

Alantec PowerHub 4000, 6000 20
Banyan BeyondMail 2.1 for Mac, BeyondMail for Mac for Intelligent Messaging III 45
CE Software QuickMail 3.5 45, 90
Datawatch netOctopus 1.3 4
DCA coaxial adapter card 86
Digital DECswitch 400 20
Digital TeamLinks Office 2.1 45
Grand Junction FastSwitch 10/100 FDDI 20
Hewlett-Packard HP OpenMail Macintosh Client 45
Lotus cc:Mail Desktop for Mac 2.2 45
Microsoft Microsoft Mail for Mac 45
Sonic Systems QuickStream/3 20
Xedia MADswitch AUI, Lite 20

ORGANIZATIONAL TOOLS

Casady & Greene InfoGenie 1.0.2 40
Russell Calendar Manager 5.0 11, 45

PRINTERS & PRINTING TOOLS

Agfa ChromaPress 14
AM Multigraphics DCP-1 14
Apple Color LaserWriter 12/600 PS 3
Barco DigiPress 14
Canon Color Laser Copier 86
Canon CLC X 14
DuPont DuPont XEL 140, 180; Celix 2000, 4000, 8000, 8000 computer-to-plate device; Digital WaterProof system 14
Heidelberg QuickMaster-D1 14
Hewlett-Packard Color LaserJet 3
IBM Pennant 14
ICG North America PostScript Level 2 RIP for Titan 582 B1-size Combination Platesetter 86
Indigo E-Print 1000 14
Scitex Spontane 14
Tektronix Phaser 540 3
Xerox Xerox XPrint 4915, 4920, 4925 4
YARC YARC-RIP 86

PROGRAMMING/ DEVELOPMENT TOOLS

Apple OpenDoc 4

SCANNERS & OCR

DuPont Crosfield C240 drum scanner 14
Visioneer PaperPort 28

STORAGE

Apple AppleCD 600e Quad-Speed, Apple 600i Quad-Speed 35
Astarte Toast CD-ROM Pro, Toast CD-DA 10, 38
Casa Blanca DriveCD 36
Connectix RAM Doubler 1.5.2 46
FWB hammerCD 6x Reader, CD-ROM ToolKit 1.5.2 35
Iomega Zip drive 90
Mega Drive Enterprise 2, MX/500 10
MicroNet Master CD Plus, Raven Professional PCI packages 10
MicroNet Master CD Pro 2.5.2, Pro-Certified High Quality CD-ROM recording media, Publishing Station, CD-ROM Master 4x4, CD Copy 38
NEC MultiSpin 6X 35
Newer DIMM Tree 6
ProMax PR-2000, PR4-4000 10

SYSTEM ENHANCEMENTS

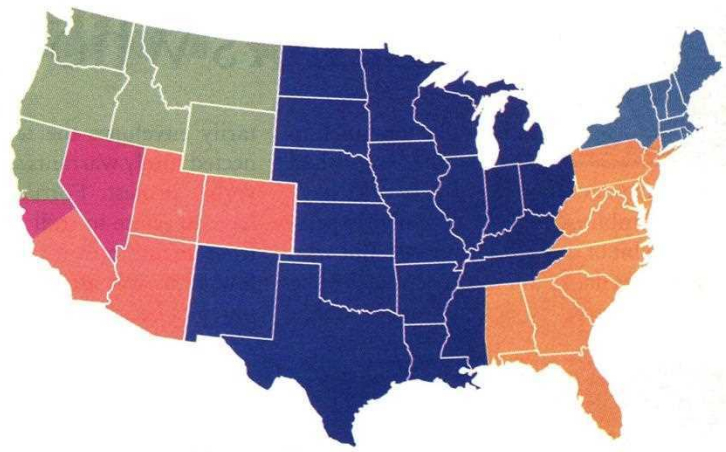
miro miroCHROMA 1024GT, 1152GT, 1600GTT 86

TELECOMMUNICATIONS

4-Sight 4-Sight Fax LS-30 20
SoftArc FirstClass Gateway 2.0 for Macintosh 20

WORD PROCESSING

Iconovex Indexicon, LexEdit 11



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Advertiser Index

Allied Telesyn International . . 44
Apple 8-9, 18-19, 29, 42-43
APS Technologies 48-49
Asanté 21
ClubMac 56-57
Computer Select 39
CRA 54
DayStar 92
Direct Connections 58
DirecTech 50
Farallon 5
Frame Technology 41
FWB 91
Graphsoft 90
HSC Software 7
La Cie 32-34
The LLB Company 60-61
MAC Xtra 63
Mac Zone 51
MacMall 62
MacSale International 78
Memory Traders 69
MicroNet 2
Microsoft 12-13, 26-27
Microtech 47
Olympus Image 17
ProDirect 59
Shreve Systems 82-83
Spin Peripherals 52-53
Syex 55
Synergy Software 10
Tahoe Peripherals 68
TechWorks 64
Truevision 15
White Pine Software 87
Wollongong 11

E-mailers who roam from the LAN

zxDon't be too quick to dismiss the anguished cries of users whose local networks have come tumbling down until you've experienced a bit of dead time yourself. But who among us lacks these credentials? The resulting surge of despair that momentarily envelopes the temporarily disconnected surely warrants such an involuntary verbal protest. Fortunately, most of us have to pause to troll our memory banks for remembrance of things crashed and few of us can afford the luxury of such pursuits because of that mammoth mass of messages that must be processed.

For a goodly portion of Mac users, e-mail means CE Software's QuickMail, the generally lukewarm reception of Version 3.0 notwithstanding. This week the Knife brings tidings of Version 3.5, which includes some good news for those who exercise their right to roam but reject restrictions on their network access. This go-around, the action is on the server side of the equation, as expected.

This late-summer server treat will include the expected gateway support and security features, but it is the news of the new server-based MailManager that will crease the pants of roving e-mailers. The client-based rules for handling user mail of QuickMail 3.0 is the right thing only if you stay tethered to the desktop. Go walkabout means leaving your rules behind. With 3.5 that task will reside on the server, which is where all such tasks belong, after all.

Cool enough, but the real contribution to our cultural heritage will more likely be the decision to put some of those porcine Preference folder files outside the System folder where they won't be so easily forgotten. CE is thereby driving another stake into the hearts of storage vendors who won't be amused as all that forgotten disk space is resurrected to read and write another day.

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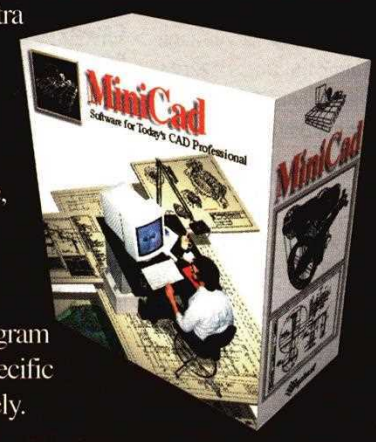

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Farallon futures

The boys who keep an eye on Baltimore chimed in with cheerful accounts of Farallon's sneak previews of its Netopia Internet router at the recent National Educational Computing Conference. Even with the single 56-Kbps ISDN channel in the prototype, education professionals weren't shy about expressing their interest. Too bad those rumors that Netopia won't arrive in time for the back-to-school season had to put a damper on things. Schools with extra funds in their budgets might wait until well into November before Farallon brings the Internet to the educational masses.

Covert clones coming?

In the Mac clone manufacturing derby things move forward with a determined speed, as this week's Big Blue revelations illustrate. But while the sudden announcement of OS licensing intentions was making headlines, behind the scenes the rumor making the rounds suggests that Apple is giving serious attention to the task of signing up even more majors, such as Gateway 2000. Not that said clone company is a candidate, unless Apple's reluctance to discuss the possibility is any indication.

Zip block

Despite its feather-light weight, that Zip drive you managed to snag in the past couple of weeks is probably beginning to look like a bit of a cinder block now that those few disks you were able to get your hands on are filled with priceless files. Perhaps the rumor that Iomega has signed on Zenith as a Zip cartridge subcontractor will lighten the load. Seiko Epson last week said it will also join the push to get more Zips out the door — here and in Japan. □

A MacWEEK mug could alleviate that stuffed feeling you've had since digesting that big tip. You supply the contents, we'll supply the container at (415) 243-3544, fax (415) 243-3651, Internet (mac_the_knife@macweek.ziff.com), AppleLink (MacWEEK) or CompuServe/ZiffNet/Mac.

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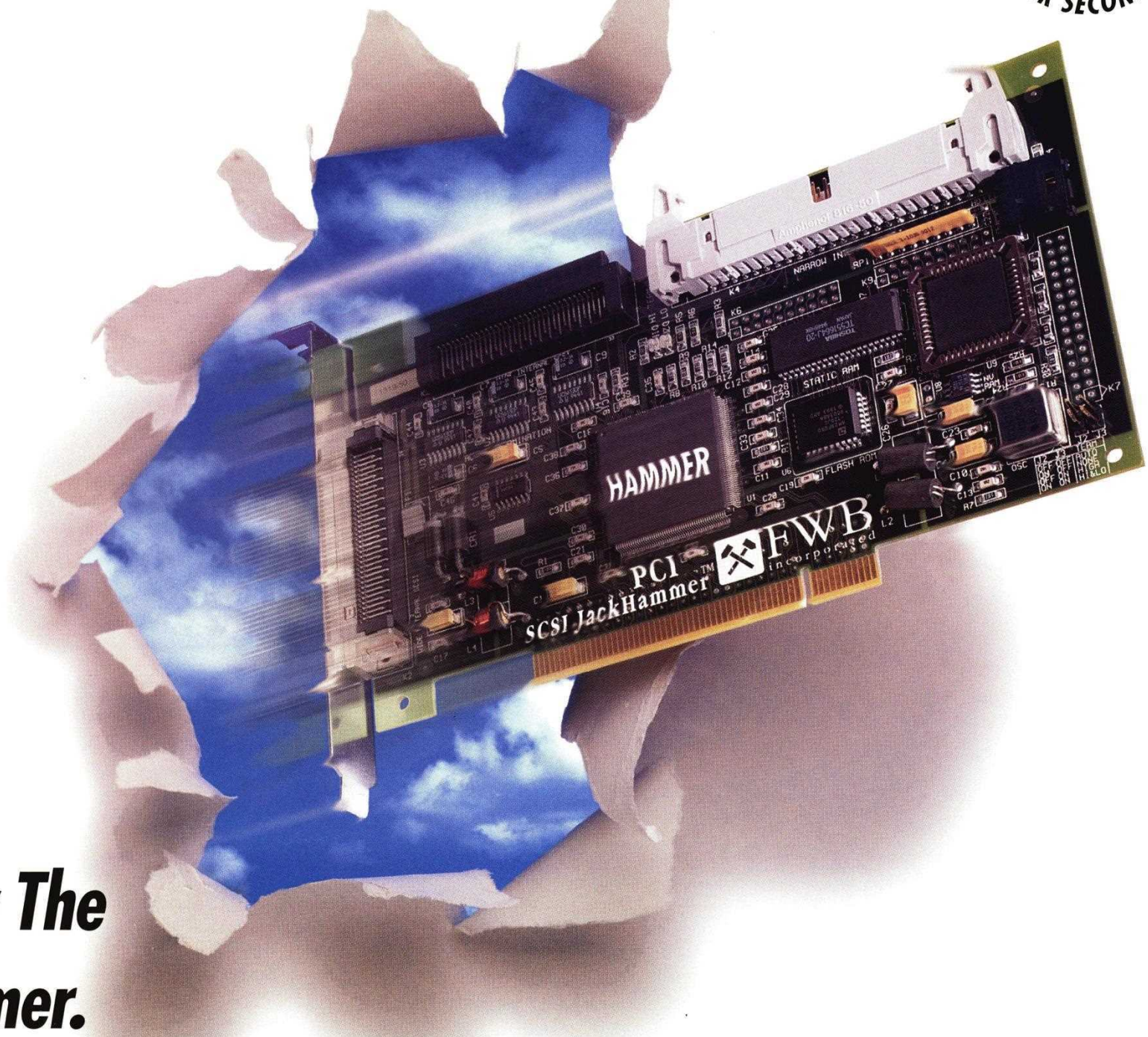

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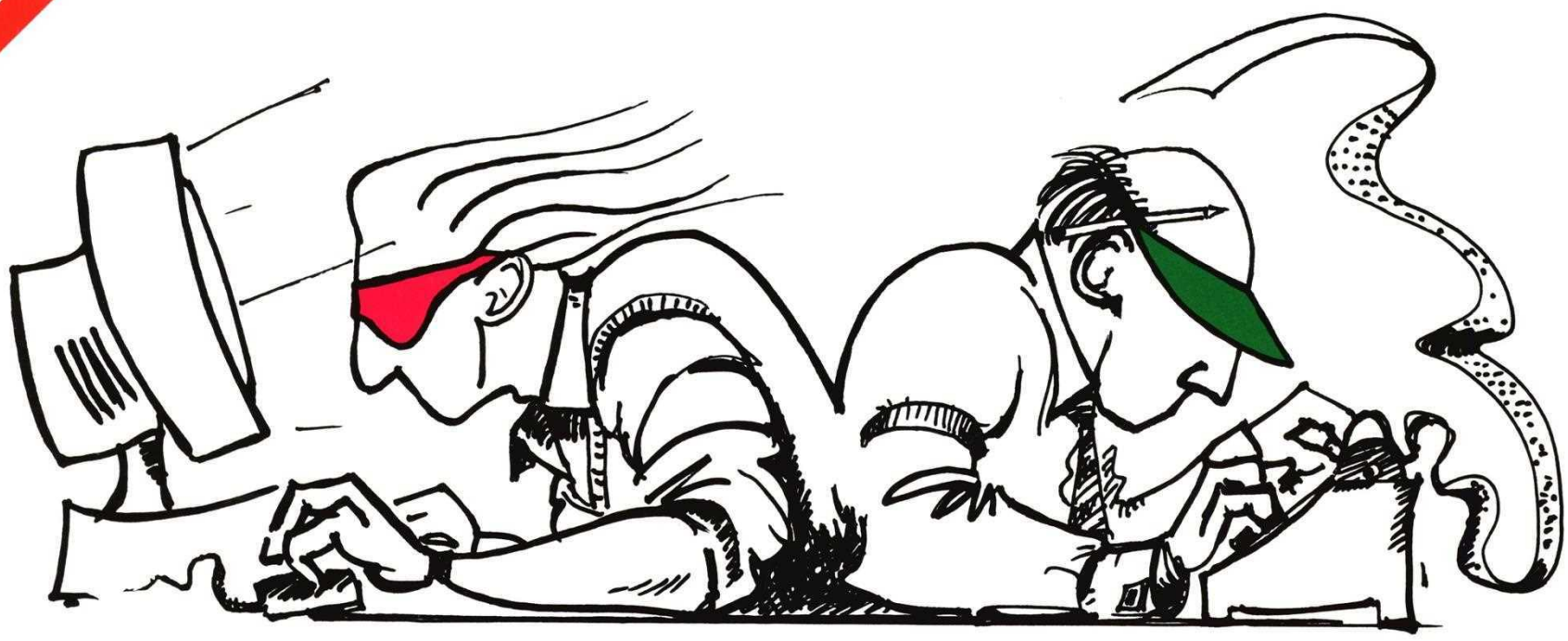

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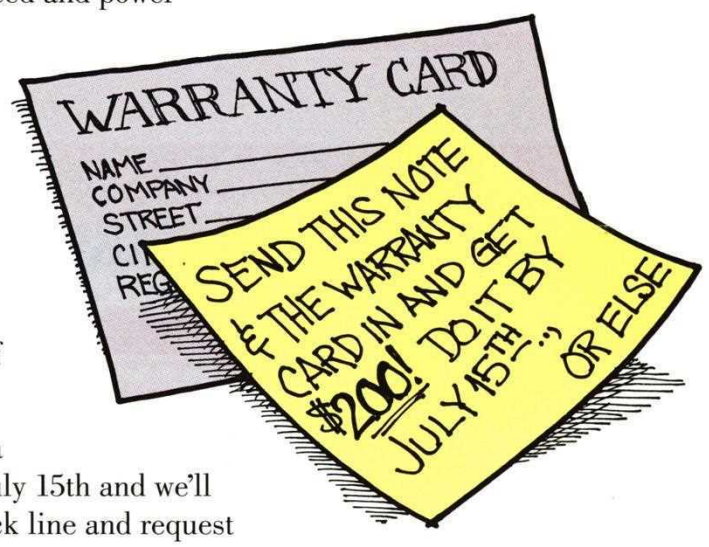

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